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FIG. 1. THE HOME OF THE GREAT HORNED OWLS AS TAKEN ON APRIL 7, 1906

THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



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A HISTORY OF CERTAIN GREAT HORNED OWLS

By CHARLES R. KEYES

WITH THIRTEEN PHOTOS

MY experiences with Great Horned Owls, especially with a pair which has been under my observation for several years, have often suggested a contrast and comparison with Mr. Finley's work on the California Condor. In several respects our subjects and experiences show a certain broad resemblance. Both birds belong to the family of birds of prey, the one being the largest of the North American vultures, the other the greatest of all the owls. The Condor has passed into legend and literature as the largest bird of flight and the most graceful when on the wing; the Great Horned Owl occupies a place no less important in legend and literature as the symbol of brooding wisdom and solemn mystery. In both our studies too the rare privilege was enjoyed of extending our observations over the whole home period of the bird's life, from the eggs in the nest to the young ready for their first excursion into the outside world.

In most respects, however, our stories are as much in contrast as they could well be. The Condors had their home in one of the wildest and most inaccessible of Californian mountain regions; from their nest rim the owls could look out upon five farm houses, with their numerous outbuildings, and one school-house, all within a radius of five hundred yards and all neighbors of other homesteads and school-houses set down in the very peaceful and non-mountainous state of Iowa. The Condors, in their wild environment, were tame and well-disposed from the first and grew constantly more docile as the study of their home life proceeded, proving to be, apparently, the gentlest of all the raptorial birds; the Great Horned Owls, with surroundings that would seem to teach peace, had bad dispositions to begin with and these constantly grew worse until, after six weeks of suspense and with the longest of our claw marks still unhealed, my assistant and I felt a sense of relief when the young owls finally took to the tree tops, leaving us with fairly whole physi-

ogonomies and the feeling that we had done the best we could, under the circumstances, to preserve the record of an unusual set of conditions. The Great Horned Owls had proved to be, without much doubt, the fiercest of all the birds of prey. In one further respect, unfortunately, our experiences were in contrast to those of Mr. Finley and Mr. Bohlman. We found it impossible, by any means at our command to secure satisfactory negatives of the adult birds.* We were unable to take them at distances of less than thirty feet and in every case they so blended with their background of gray bark, or gray bark and patches of snow, as not to be worth while. We regretted our inability to try the effect of a blind to operate from, but the mechanical difficulties in the way of such an attempt demanded more time for their solution than we had to give. We therefore gave our attention to the nest and contents, or rather as much attention as the old birds would allow us to give. As the adults were necessarily much under observation it is hoped that a record of their conduct may add some interest to the present article.

The beautiful deciduous forest, stretching for miles along the north bluffs of the Cedar River to the west of Mt. Vernon, had by 1890 been reduced to various detached groves of from ten to a hundred or more acres each in extent. About February of this latter year I was hunting through one of the larger of these



Fig. 2. THE OWLS' NESTING TIME; FROM TOWN THE TIMBER TRACT AND ENVIRONMENT ARE SEEN IN PANORAMIC VIEW

groves which, if one struck straight across the fields, was only a mile and a half from town. I remember watching the short, uneasy flights of a Great Horned Owl, but without locating his mate. I also remember talking with Mr. McFarland, a sturdy Scotchman who has occupied his homestead just across the road from the owls' hunting grounds since the early fifties, and learning that "big hoot-owls have always been in that timber." Soon after, the great oaks and hard maples of the eastern two-thirds of the grove fell under the ax, leaving to the west only a twenty-five acre remnant and, in the cut-over area, only some old white elms and a few young maples and lindens. Among these latter the forest soil soon gave way to a thick carpet of blue grass and so what had been heavy forest was gradually transformed into a rather open and still very beautiful timber pasture. It was taken for granted that the owls had moved elsewhere and for a series of years what had been famous "Sugar Grove" was practically forgotten. From 1901 on, however, my way several times led across the pasture and into the timber tract and I was surprised to note there each time the presence of Great Horned Owls. Once or twice I even

* The portrait of the adult owl shown herewith (p. 7) was taken several years ago from a fine specimen brought in to the Cornell College biological laboratory. The picture was made by a student of zoology, who left the negative as property of the college.

took some pains to find a possible nesting site. There appeared to be none, so I concluded that the owls were merely transients. On February 6, 1906, just at nightfall a friend and I were walking along the public highway which forms the north boundary of the pasture and the woods. Suddenly the hooting of big owls boomed out from a nearby linden of the timber pasture and there, sure enough, were both birds engaged in ardent courtship and not minding our presence in the least. They stood facing each other on the same branch and, with feathers ruffled and heads bobbing, were hooting in low tones as they side-stepped toward one another and greeted one another with low bows. Finally they flew away, side by side, into the timber tract. That these were transient birds was beyond belief; so, on February 17, after allowing what seemed to be a fair margin of time, I decided to give the vicinity a thorough search. To make the story short the nest was at last found in the very place where previously it had not seemed worth while to look. It was not in the heavy timber at all but in one of the large elms of the pasture and, moreover, hardly more than fifty yards removed from the above-mentioned public road where teams were constantly passing. Toward the south the view was wild, open, and picturesque enough; to the west, north and east, at distances varying from 200 to 500 yards, were the school-house and farm houses as above stated.

A more fortunate set of conditions for the study of the owls' home life could hardly be hoped for. The short distance from town has already been indicated. The nest was in a large shallow hollow, 28×32 inches in diameter at the bottom, with an entrance 18×20 inches in diameter set at an angle of 45° and facing towards the southeast. The hollow was only 8 inches deep on the exposed side, thus permitting fairly good illumination. Of still more importance the nest site was only 22 feet from the ground and a strategic branch some five feet above the nest afforded a point of attachment for a ladder combination from which pictures might be taken.

As Great Horned Owls generally make use of old hawks' nests placed in the tops of the largest trees the good fortune of this modest elevation can readily be appreciated. At the very moment when this nest was discovered a second pair of these birds were domiciled in a Redtail's nest placed in a tall white elm in heavy timber three miles and a half to the northwest and just ninety-two feet above the ground! Further, the proximity of farmhouses made certain the necessary supply of ladders and ropes. Mr. Benedict, who lived just across the road and only two hundred yards to the east, and Mr. McFarland, whose house stood only seventy-five yards farther to the east, were our interested and generous benefactors. Our opportunities were indeed great and, as I said, we greatly regretted our inability to make better use of them.



Fig. 3. ADULT MALE GREAT HORNED OWL;
DURING A DAY'S CAPTIVITY HE WAS
SILENT, PROUD AND DEFIANT

The weather on February 17 was fairly moderate, with the snow melting slightly, though the preceding days from February 6 had been stormy enough, with temperatures as severe as ten below zero. But the sitting bird was wonderfully protected from the storm winds of the north and west and flushed from three large perfect eggs that lay in the slight hollow of the decayed wood on the north side of the cavity. It seemed to me out of the question, with such temperature as February and March were sure to bring, to obtain any pictures without having the owls put their date a little later in the season; so, after a little quick thought, I pocketed these eggs and went home. My conviction that the owls would not abandon so ideal a site after a probable occupancy of years was fully confirmed when, on March 23, three more eggs were found, just like the first and lying in exactly the same little hollow.

Saturday, April 7, was the first warm day of spring. On this day Mr. W. W. White, a student in Cornell College, and I made the first attempts to secure pictures of the owls' home and surroundings. Mr. White's ingenuity proved greater than



Fig. 4. A PORTION OF THE OWLS' HUNTING RANGE AS SEEN FROM THE PUBLIC HIGHWAY; NEST TREE ON EXTREME RIGHT

my own and to him are to be credited the scheme for getting a camera within range of the nest and the successful picture of the eggs *in situ*. He also took the front view of the nest tree, looking northwest and showing the general situation and the interesting structure of the big elm itself. I merely helped him with the necessary ladders and ropes. Our two twenty-foot ladders, lashed together and drawn up with a guy rope so as to rest on the aforesaid strategic branch, made anything but a solid foundation from which to work. Nevertheless all the near views of the nest were taken from this unsteady perch, the camera being tied with strings to the sides and rungs of the topmost ladder.

On April 14 two young were found in the nest and the remaining egg was much pipped. Both young were entirely blind and only one gave much sign of life. This was done by uttering a querulous little note somewhat like that of a very young chicken when excited but not sufficiently frightened to peep. The older one was able to hold its head up slightly while the smaller was entirely help-

less. Both shivered as if from cold, the day being cool and showery. In the nest cavity were a headless Bobwhite and the hind parts of an adult cotton-tail rabbit. The weather conditions prevented our trying to secure a negative. On April 19 only two young were found in the nest, with nothing at all to indicate the fate of the third egg. The young appeared quite lifeless, allowing their bills, which were of a slaty color with darker tips, to rest in the decayed wood of the nest bottom. The feather sheaths were pushing out on the dorsal and scapular tracts, and at the tips of these the brown juvenile plumage was beginning to show. The primary quills were also sprouting but the feathers themselves were still entirely



Fig. 5. THE OLD ELM WITH THE NEST CAVITY IS IN ITSELF A NATURAL CURIOSITY;
VIEW NORTHWEST

concealed. The nest cavity contained a headless adult rabbit and a headless coot, also the hind parts of a young rabbit about the size of a striped gopher. No assistant was available on this day. On April 21 the young showed very noticeable increase in size, the brown feathers now showing all over the dorsal and scapular areas. The eyes had partially opened in the form of a rather narrow ellipse. Still quite listless the young emitted the querulous note as described but did not snap their mandibles. The view inside the nest hollow was rather a pitiful one. In addition to half a coot and half a rabbit (probably the leavings of two days before) there

lay scattered about four young cottontails hardly as large as an adult striped gopher. Two were whole, one headless, and only the hind parts of the fourth remained. A high wind and a chilly day caused Mr. White and me to lose this extraordinary picture. By April 26 the eyes of the young birds were nearly or quite open, the



Fig. 6. FEBRUARY 7, 1907; THE GRAY PLUMAGE AND WHITE THROAT PATCH OF THE OLD OWL SITTING ON THE RIM OF THE NEST CAVITY BLEND PERFECTLY WITH THE BARK AND SNOW

iris being of a milky yellow or light lemon yellow. The mandibles, which were now grayish yellow in color, were snapped vigorously. The primary quills were an inch and a half long, the feathers just beginning to show at the tips. The food in

the nest consisted of the hind parts of an adult cotton-tail, an entire striped gopher and a headless Bob-white. Various feathers of a Flicker also indicated a capture of this species. I was again without an assistant. On April 28, with the help of Mr. George H. Burge, I was able to repeat Mr. White's performance of three weeks before and get a successful negative of the nest and contents. The young were now two weeks old, still quite drowsy and inert, and entirely disinclined to open their eyes toward the light. The only food in the nest was the hind quarter of an adult cotton-tail.

Thus, for 1906, weather conditions thought to be insuperable and frequent inability to get a helper when one was needed had permitted a net return of only three



Fig. 7. MARCH 16, 1907; WHERE THE DEAD ARE MORE IN EVIDENCE THAN THE LIVING; OWLETS FOUR TO EIGHT DAYS OLD

good negatives. Further trips were made alone to the owls' home and a few further observations recorded. By May 9 the young seemed to have doubled in size and were wide-awake and combative. In size they were even then, at three and a half weeks, as large in appearance as a two-thirds grown Plymouth Rock hen. In the nest lay the hind quarters of an adult rabbit, a headless young rabbit about one-third grown, and a large headless brown rat. Being away from town myself, on May 16 Mr. White, with a student assistant, went to the timber pasture intending to secure a fourth picture. The nest was found empty, the owlets having occupied it this season only about four weeks. Soon after that, as I learned from one of the neighbors, two little girls gathering flowers in the timber tract came across both

owlets as they were scrambling along the ground and evidently still unable to fly. The girls reported the strange creatures to a hired man who was temporarily in the neighborhood and he hunted up the "varmints" and clubbed them to death. The real neighbors of the owls would not have done this. They were all interested in the big birds and all reported that their large flocks of chickens had not suffered from their presence.

A further word should be added on the behavior of the adult birds during the first season. With two of us at the nest their demonstrations, although energetic enough, never proved dangerous. Both birds merely came near, flying back and forth at distances varying from thirty to a hundred feet, snapping their mandibles, ruffling their feathers, and hooting out vigorous protests. It was different when one person was at the nest alone. On April 28 I had arrived at the



Fig. 8. MARCH 30, 1907; THE BEGINNINGS OF INTELLIGENCE; OWLETS EIGHTEEN TO TWENTY-TWO DAYS OLD

old elm about twenty minutes ahead of Mr. Burge and, standing on the next to the top round of a twenty-foot ladder, was making some examination of the young and the other contents of the nest cavity. The ladder necessarily stood as nearly vertical as possible to reach the cavity at all and, as the big tree was about five feet in diameter just below the hollow, the hold was none too secure. Fortunately a small horizontal branch shot out from the heavy trunk on the northeast side and against this the top three inches of the ladder found some support. Without this I dislike to think what might have happened when that stunning blow came in from the south quarter. It came absolutely unexpected and was so violent as to leave the left side of my head quite numb. With my hand I discovered that blood was running down my cheek and a quick glance around showed my assailant stepping

up and down on a nearby limb and clearly ready to come again. Under the circumstances I slid down the ladder to firmer vantage ground. The slash which began on the left cheek and ran across the left ear was rather ugly but not dangerous. Considering the eight claws of a Great Horned Owl, each an inch and a quarter in length, I had gotten off easily. Evidently only one claw had taken effect, the curvature of the great tree trunk and my clinging position over the nest rim having given, doubtless, some protection. The numbness was probably caused by the stroke of a rushing wing.

When on May 9 I was again compelled to visit the nest alone I knew what to expect and so was constantly on my guard. About three seconds study of the young birds and nest contents was alternated with about the same amount of scrutiny of the immediate horizon. In this way it was possible to define an adult owl's manner of attack. Three times on this occasion one of the birds flew in from a neighboring tree and with strong stroke of wing came straight at my head. It was not at all the stoop of hawk or falcon, but rather the onrush of a heavy projectile with a very flat trajectory. Like a large projectile too the flight was visible and so all the more disconcerting; unlike a projectile it was noiseless as a flying shadow. Audubon speaks of the hunting flight of the Great Horned Owl as being incredibly swift and, kind reader, I am quite ready to agree with him. The big bird, perched on a branch from thirty to fifty feet away, first shifts nervously from one foot



Fig. 9. APRIL 13, 1907; OWLETS OF VARIOUS MINDS; AGE THIRTY-TWO TO THIRTY-SIX DAYS

to the other, then launches swiftly into space. There is just time to brace oneself a little, swing one's cap, and quickly duck one's head as the great missile rushes past. The owl keeps straight on her course and alights with heavy impact on a branch of a neighboring tree. Here she faces about and very likely comes straight back again. This process became finally a bit too exciting and, after making certain that the headless quadruped lying in the nest over behind the owlets was just a big house rat, I slipped down the ladder and went home.

February 7, 1907, was cold and clear after the terrific snow storm of the night before. On this day Mr. James R. Smith, a young farmer of the vicinity who had always been interested in birds and who was destined to be my skillful assistant throughout the season, accompanied me to the snow-covered timber pasture. As we approached the nest tree of the year before a fox squirrel leaped from one of the smaller adjacent trees and, starting up the big elm, ran along the rim of the great knot-hole which formed the owls' doorway and scampered on to a topmost branch. If the owl were at home the saucy fellow surely passed within ten inches of her face.

For a moment we felt dubious as to the nest being occupied. As we approached the tree, however, a Great Horned Owl flew from one of the higher branches, aroused either by the squirrel or, more likely, by our own approach. This was more favorable. We gave the tree a few kicks, when the sitting bird hopped up lightly to the rim of the cavity, looked across the white landscape for several seconds, then spread her nearly five feet of wings and flew silently away.

Our first mistake for 1907 was in not looking into the nest on this first day. Our reasons for not doing so were the belief that the set of eggs could hardly be complete at this time and especially the fear that the egg or eggs could not stand exposure even for a short time on so cold a day. My present belief is that this fear was unfounded. Just two days later, on February 9, at about three o'clock in the afternoon, I visited the nest again and found the set of three eggs complete.



Fig. 10. APRIL 18, 1907; AT THE BASE OF THE OLD NEST TREE; YOUNG THIRTY-SEVEN TO FORTY-ONE DAYS OLD

These were lying in a slight hollow as before, but as far back in the cavity as possible. Except for a small space about the eggs the house was filled, even to the door sill, with snow. It was a picture indeed, but one over which we did not dare tarry in freezing weather. All the eggs were nest-stained and it did not look as if any one of them had been laid that day. However, this was uncertain and I had lost a possible opportunity of learning just when the set became complete. This was regrettable, for no one seems to know the period of incubation of an egg of the Great Horned Owl. The older ornithologists made their guess at three weeks. Bendirc later expresses his belief that this period is too short and that four weeks is probably nearer to the truth. I have not determined the point though my data still possesses some interest. Toward the end of the month I

began to visit the nest as often as possible to ascertain as nearly as I could when the chicks appeared and how long the hatching process lasted. It was not until March 6, at 2 p. m., that I found one of the eggs pipped, a small round area no larger than a pea being broken. On March 7 at the same hour the broken area was the size of a dime. I could distinctly hear, however, several times repeated, the low twittered note of the still imprisoned chick. The other eggs still showed no sign. Bad weather and pressure of other work now prevented a further visit until March 11, at two-thirty o'clock. Two very callow owlets were now in the nest and one slightly pipped egg. The young birds were not completely protected by their white down as yet, the bare skin being visible between the tracts. On March 16 three young owls of different sizes were found in the nest, one being quite markedly smaller than the other two. The query remains: how long does it



Fig. 11. APRIL 22, 1907; DORSAL AND LATERAL VIEWS; AGE FORTY-ONE TO FORTY-FIVE DAYS

take a Great Horned Owl's egg to hatch? The above are the data kept and anyone can make estimates on them. It seems certain that these birds did not lay an egg oftener than once in two days and that the period of incubation could not have been less than thirty days, with the probabilities on the side of a rather longer period.

For our second year's work we had the experience of the first to go on, we were more confident of the owlets' ability to bear exposure, and so decided to photograph them at least once a week, let the weather offer what it would. And the offerings were of sufficient variety! On March 16, with the young from four to eight days old approximately, the temperature was well above freezing and comfortable, but we were unable to expose a plate until 4 p. m., the sun became covered with black clouds, and we were on the shady side of the tree. We were not hopeful, but a long exposure accomplished our purpose. In addition to the parts of three adult cotton-tails and one Bob-white which the camera shows, a

fourth rabbit and a second Bob-white, also a plump field mouse, do not appear in the picture, being tucked away under the over-hanging roof to the left or buried under other remains. It was chilly on March 30 and a high wind was blowing in from the northwest. On April 13 we had a regular northwest gale to contend with and freezing temperature added. We varied our work with the camera by runs across the frozen timber pasture. Why it was that our negatives taken on these last two dates did not show motion we have never satisfactorily explained to ourselves, for only time exposures could be used. Certain it is that both the big elm and our nearly thirty-foot stretch of ladder were swaying back and forth under the lash of that roaring wind. The gentle rain that was falling when, on April 18, Mr. Benedict helped me bring the now lively owlets to the base of the old nest tree, proved to be really no obstacle at all. It splashed water against the lens of the camera but the negatives gave no sign. The first fine weather of spring was calling forth the backward buds of the young hard maples when, on April 22, the owlets posed for the last time on an old oak stump just east of the nest tree. The weather encountered on dates not mentioned was composed of variations of the above, but the rule was freezing temperatures with high winds. Under all the conditions the young owls thrived and did not seem to mind seriously our intrusion into their home life.

During the season of 1907 the food contents found in the nest cavity reach the following total: five Bob-whites, two meadow mice, one domestic pigeon, one Flicker, two American Coots, one King Rail, nineteen adult cotton-tails. This list is not, of course, an accurate account of the various captures brought to the nest. It merely records what was seen there on the sixteen trips made. The same bird or mammal was doubtless sometimes counted twice and captures were in all probability brought in of which no remnants were seen. I think not more than three different Bob-whites were seen, quite likely only two, and the number of cotton-tails is also probably too high. The fact seems to be that both birds and quadrupeds of the larger size, after being eaten from the head to the tougher hind parts, were then left two or three days untouched and finally removed from the nest altogether. These were not dropped about the base of the tree, however, and in fact no trace of food remnants were found at any time except in the nest itself. That some refuse was removed from the nest seems probable from such facts as the following. The above mentioned two Bob-whites, one meadow mouse, and four rabbits found in the nest cavity on March 16 were all in fairly whole condition, aside from the heads. On March 23 parts of five rabbits were found, represented by the hind quarters only, and one Bob-white with the breast eaten away. These were mostly rather dessicated remnants and I took them to be, for the most part, leftovers from the week before. On March 30 the nest was entirely clean except for a freshly killed white pigeon. Generally speaking the nest cavity was well kept, a fact which seemed to indicate removal of the excrement of the young by the old birds.

Our second season's active work with the owls was not without its exciting features. Twice when alone I had had, in spite of close watchfulness, pretty close brushes with one of the old birds. But it was not until the young were removed from the nest for the last two attempts to get clearer pictures that there was any real element of danger. With the three pugnacious owlets grouped on the ground at the base of the nest tree both old birds now closed in, teetering and dancing and hooting on branches about thirty feet from our heads or brushing close past us as they took up new positions or sought for an opening. Mr. Benedict, who was my

helper this time, literally stood guard *over* me as, with camera close to the ground, I stooped under the focusing cloth. Except for his full-voiced yells and well-aimed sticks I am sure my position would have been utterly untenable.

The last try for pictures, when the young were placed on the old stump a few feet to the east of the big elm, did not pass off so smoothly. Whether the city friend who had become interested in the proceedings and who was this time trusted as my body guard was less effective with voice and missiles than he should have been or whether the owls no longer feared an ordinary demonstration, it would be hard to say. Two of the youngsters were already on the oak stump and I was somewhere aloft in quest of the third. Presumably I was either just reaching over the nest rim for the last snapping owlet or else had just started down with him. My memory has never been clear on the point nor was my excited friend ever able



Fig. 12. APRIL 22, 1907; A FRONTAL VIEW; TWO DAYS LATER ALL WERE IN THE TREE TOPS

to elucidate fully. At any rate my position for the moment must have been strategically bad. The sharp cry "Look out!" barely gave me time to duck my head, when a resounding whack was administered across my shoulders. This was not damaging, but the return stroke would come quickly and doubtless be better placed. It came and I ducked again, but not quite far enough, or possibly not at exactly the right instant. The shock was profound. The list of damages showed three scalp wounds from an inch to nearly three inches in length, while my cap had disappeared entirely from the scene. This was later found under a tree some hundred yards to the south, a punctured souvenir of our last intimate contact with the Great Horned Owls.

After each sitting the young were replaced in the nest and two days after the stormy last one, on April 24, the house was found empty and the family was in the

tree-tops. It will be noted that the owlets remained in the nest about two weeks longer in 1907 than in 1906. One youngster was in the very top branches of the old elm of his nativity, fully fifty feet above the deserted home or more than seventy feet above the ground; another was a hundred yards away in the timber tract and some eighteen feet up in a linden; both were motionless and inconspicuous among the budding branches. In the time at disposal the third brother could not be found. Two days before this the young had shown neither inclination nor ability to fly. It seems certain that no one of them could have mounted a vertical

distance of fifty feet through any powers of his own. The conclusion seems inevitable that in some way the old birds carried the young to the places where I found them. But the secret belongs to the owls, for no one witnessed the leave-taking.

A little more than two months passed by and on a walk through their now heavily-foliaged retreat two great heavy owls, seemingly, and doubtless actually, larger than adults, were startled from the ground near some prostrate tree trunks, from which they flew slowly into the nearby trees. Almost at the same moment a third dropped from the lower branches of an oak and took up a new position deeper in the shadows of the woods. So far as mere size was concerned the owlets had reached and even surpassed the adult owl estate, though probably still under the care and tutelage of their elders. From now on they would need to shrink and harden into the strength and agility necessary to enter the competition of adult owl life and maintain themselves in the general struggle for existence.

February of 1908 again found Mr. Smith and me rapping anxiously at the old elm of the timber pasture. With the facilities at our disposal we could accomplish little more with the young birds, but during the year we had formulated a plan by which there might be a bare pos-



Fig. 13. THE OWL HOME OF 1908; A VAIN
LOOK ALOFT

sibility of securing a portrait of the old owl as she sat within her doorway. Our hopes were raised by the reports of both Mr. Benedict and Mr. McFarland that, as the nesting season approached, the owls had been heard hooting as usual. Our misgivings began when we found piled about the nest-tree the cord-wood from a number of the neighboring young lindens. The old nest cavity was found empty. The owls were able to endure intrusion into their home life for two seasons, but evidently did not take kindly to radical changes in their immediate environment.

A mile west of the old home is another forest fragment of perhaps sixty acres

and in this a pair of Red-tailed Hawks had built their bulky aerie in a tall white ash tree, seventy-five feet from the ground. Following the custom of most of their tribe when suitable hollow trees are no longer to be had, the big owls appropriated this new refuge and in it, in spite of rain, sleet, snow, and wind, successfully raised their brood. To be sure we had no exact proof that these were the very owls with which we had dealt in other years, nevertheless we felt morally certain. The new locality was the nearest available one and for many years, until 1908, had not boasted its pair of owls.

The years 1909 and 1910 add nothing new to the history of the owls except that, in the former year, a January gale destroyed the nest in the ash tree and the valiant pair were apparently forced to a new, but similar, retreat. Their history, so far as we were concerned, was a closed one. During the season of 1907 I had located five pairs of Great Horned Owls within a radius of seven miles of Mt. Vernon. None of these could be intimately studied except the pair whose history I have tried to trace. In February of 1910 I again tried to locate breeding birds of this species, but without success. In spite of the big fellow's tenacity in clinging to a locality once chosen, in spite of his cleverness in escaping observation, it almost seems now that the coming of the wanton shot-gun army and the going of the protecting forests were gradually making the Great Horned Owl, along with many another species without which the woods are stiller and humanity poorer, in the more settled parts of our country at least, a member of a vanishing race.

NESTING OF THE CALIFORNIA CUCKOO

By ALFRED C. SHELTON

WITH ONE PHOTO

RUSSIAN River, flowing through northern Sonoma County, and emptying into the Pacific Ocean at Duncan's Mills, receives one small tributary from the south, designated on the map as Laguna de Santa Rosa. In the locality of which I write, about five miles southeast of Sebastopol, this stream, known locally as the "Lagoon", becomes, after some winter storm, a turbulent river, flooding acres upon acres of bottom land. In summer its course is marked by a chain of long, rather narrow ponds, many of which are deep. The banks, and much of the intervening space between these ponds, are covered with a thick growth of willow, small ash and scrub oak, while the whole is tangled together with an undergrowth of poison-oak, wild blackberry and various creepers, forming, as it were, an impenetrable jungle, hanging far out over the water. Occasionally there is an opening in the brush, and in such a case, the bank is fringed with pond-lilies and tall rushes, and here may be caught black bass and cat-fish, together with an occasional trout. To one who may perchance take an interest in the feathered inhabitants, this old lagoon has an especial attraction, for it is a breeding home of the California Cuckoo.

Of all migratory birds breeding in this vicinity, the Cuckoo is the last to arrive in the spring, usually appearing during the latter part of May or the first week of June. Upon its arrival, this bird keeps to the higher land, among the oaks and other timber, for a period of two or three weeks before retiring to the willow bottoms to breed. During this period it is wild and shy and difficult to

approach. Most active in the early morning, its characteristic note, a loud, clear "kow-kow-kow," may be heard coming from some tree or group of trees, and perchance an answering "kow-kow-kow," may come from another tree, some distance away. When heard a few times, this note is easily imitated and is readily answered by the adults. Cautiously approaching the tree from which the call has come, the bird may be seen sitting among the topmost branches, or as is far more likely, may be seen to dash forth and fly with a swift and graceful flight to another tree some distance away. Again may the tree be approached and again may the bird be seen to fly, but this time not to stop until well beyond reach, and only a distant "kow-kow-kow" comes floating back on the still morning air to let you know whence the bird has gone.

After the birds retire to the willow bottoms to breed, their entire attitude changes. When watched and studied in the seclusion of their brush grown haunts, while engrossed with the cares of their domestic duties, the Cuckoos cease to be



Fig. 14. HAUNTS OF THE CALIFORNIA CUCKOO, IN
SONOMA COUNTY

the wild, shy birds of the upland timber. The familiar "kow-kow-kow" is now forsaken for another note, a low guttural note, "kuk-kuk-kuk," always uttered by a brooding bird and is the most common call of the cuckoo during the breeding season. One other note they have, uttered like the foregoing, only during the nesting period. This note I have never been able to imitate. It has a wonderfully ventriloquistic power, and when heard at a distance of fifty yards, often seems to be half a mile or more away. When uttered, this particular call begins with the low "kuk-kuk" but gradually changes to more of the "kow-kow-kow" note, and, just before the end, closely resembles a dull, heavy drumming on a resonant limb.

On the 26th of June, 1909, while hunting through a portion of the above mentioned lagoon, in search of belated nests of the Russet-backed Thrush, I found a nest of the California Cuckoo which was a very substantial structure, considering the inefficiency of Cuckoos in general, as nest builders. It was placed upon a

large horizontal limb of a willow tree, at a point where two small limbs joined the larger one, and these held the nest firm. It was composed of long dry twigs, to which clung a little moss, and this, when the material was woven into a platform, held the structure together. It was deeply cupped, for the species, and contained two fresh eggs. The bird was brooding and showed no signs of fear as I climbed the tree. She did not leave her post, but sat watching me intently as I approached. She neither uttered a sound, nor ruffled a feather, but as I reached out to touch her, she dropped from her nest and glided away among the willows.

On July 4, of the same year, while bass fishing in one of the ponds of the lagoon, my mind was often diverted from my rod by a low "kuk-kuk-kuk" in the brush near by. When an adult bird dashed from the willows and glided away down stream, skimming along just above the surface of the water, I laid aside my rod and began to investigate. Entering the brush for a distance of perhaps thirty yards, I found the object of my search, a frail platform of twigs, placed about seven feet from the ground in a bunch of poison oak. The female was brooding and watched me intently as I approached. An old log was lying upon the ground directly beneath the nest, and as I stood upon it, and reached up to pull down the branch upon which the nest was built, the bird dropped from her nest and glided away among the willows, in exactly the same manner as the first. This nest was one of the frailest examples of bird architecture I have ever seen. It contained one fresh egg which could easily be seen from beneath. As I stood there, wondering what law of nature prevented the wind from scattering that home and its contents upon the ground, I heard something rustle in the branches above me, and glancing up, beheld the anxious parent hopping from branch to branch, holding in her beak a large yellow caterpillar. I then left for about ten minutes and upon returning, saw her again brooding upon her nest. Again I flushed her, as I wished to determine whether or not she would easily desert her nest. Just before leaving for home, I quietly returned to the spot and saw her contentedly brooding. One week later I revisited the place and found the set to consist of two large, greenish blue eggs. Soon after this the cuckoos began their regular migration, and the last one seen in 1909 was about the middle of July. One evening as I was doing my chores one passed over flying low. She went directly to a clump of willows, in which I have reason to believe she had a nest though I was unable to find it.

On the 31st of May, 1910, came the first of the California Cuckoos. On the morning of that date, about five o'clock, a loud, clear "kow-kow-kow" came floating from the top of a large pine near by. As I glanced in that direction, two birds flew from the tree and sailed across a small valley to the hills beyond. From that day on they became more and more numerous, and for two weeks remained in the uplands and then, as abruptly as they had come, all disappeared, having retired to their nesting haunts. Pressure of ranch work prevented my visiting the old lagoon until July 7. On that date, as I approached the willow thickets, a few birds were heard calling from time to time, from different parts of the brush. As I began to work my way through the tangle, the first bird I saw was a nearly fledged young one. It hopped around the branches above my head and seemed to have no fear. It was much the same as the old birds, except that its tail had attained only about half the normal length, and this, with its large body made the bird seem awkward in the extreme. The birds were not as plentiful as they had been in the spring. One adult, which I soon located, readily answered my calls. She was in the topmost branches of a willow, and, as I stood below, would hop

from limb to limb, uttering from time to time, a low "kuk-kuk". She was unusually gentle and her attitude was one of curiosity more than fear. She soon satisfied her curiosity, however, and glided away into the brush. Not another glimpse could I get of her, though she answered my call several times.

On July 26 I again visited the lagoon. For nearly two hours I searched the brush in vain. From time to time I heard a bird calling a long distance up stream. At last one answered my call near by, and I quietly approached the spot from which the note came. I then repeated the call, only to have it answered farther on up stream. This continued; in all the time I was there, not a glimpse of a Cuckoo did I obtain. The cares of nesting were over and the Cuckoo was once more the wild shy bird of the upland timber. From the depths of the brush-grown banks, out over the deep still ponds of the old lagoon, floated an occasional "wandering voice", and another season of nesting troubles and paternal duties in the life of the California Cuckoo was over.

COURTSHIP OF THE AMERICAN GOLDEN-EYE OR WHISTLER (*CLANGULA CLANGULA AMERICANA*)

By WILLIAM BREWSTER ¹

WITH DRAWINGS BY L. A. FUERTES

ALTHOUGH Dr. C. W. Townsend has given us a recent and admirable account² of the manner in which the males of the American Golden-eye pay court to the females, this subject is still comparatively novel and so very full of interest that I am tempted to offer some observations of my own regarding it. They were noted briefly on loose slips of paper when I was making them, and written out more fully in my journal only a few hours later. As the journal description records them exactly as they impressed me at a time when they were fresh in my mind and recollection, I shall quote from it almost literally, making, indeed, no changes save such as seem absolutely necessary. The figures illustrating some of the poses assumed by the birds when "showing off" have been kindly drawn for me by Mr. Fuertes from rough sketches in my note book. The journal runs as follows:

Back Bay Basin, Boston, Massachusetts, Feb. 27, 1909. I saw and heard today for the first time, under exceptionally favorable conditions, the courting actions and love notes of the American Golden-eye (*Clangula clangula americana*). Dr. C. W. Townsend gave me some account of them last year, just after he had witnessed them in February or March. On February 24 of the present year he was kind enough to notify me that the birds had already begun to perform (on the 22nd I think). I have therefore taken advantage of the first favorable opportunity to learn something of the matter at first hand.

When I left our house about nine o'clock this morning the sky was cloudless, but a thin mist or haze obscured distant objects. The air had a sharp, frosty "tang", although the thermometer had already risen from 26° to 34° Fahrenheit. There was a light easterly wind, but it began to die away soon after I reached my

¹ Read before the American Ornithologists' Union Congress at Washington, November 13, 1910.

² Auk XXVII, no. 2, April 1910, pp. 177-179.



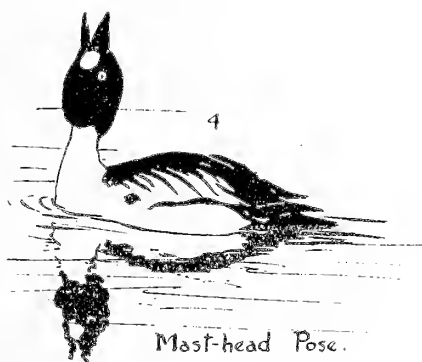
Crouching Pose.



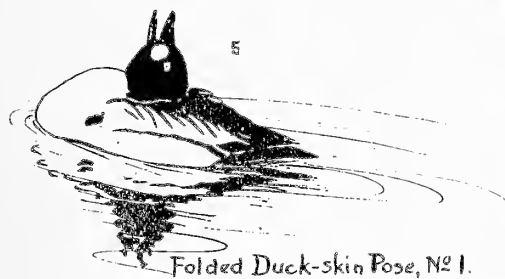
Wounded Duck Pose.



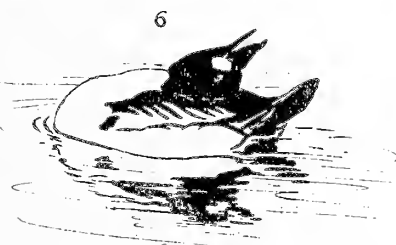
Bowsprit Pose.



Mast-head Pose.



Folded Duck-skin Pose, No 1.



Folded Duck-skin Pose, No 2

Fig. 15. COURTSHIP POSES OF GOLDEN-EYE
Drawings by L. A. Fuertes

destination and alighted from the electric car at the farther end of Harvard Bridge. No birds of any kind were then visible above (i. e., to the northwestward of) the bridge; but just below it I at once saw fifty or sixty Golden-eyes scattered about singly, in pairs and in small flocks on the slightly ruffled water. Walking down the roadway at the rear of the line of houses that front on Beacon Street I came to a pile of lumber on the recently filled parkway land about one hundred yards from the bridge and at the very edge of the river. Here I found a comfortable seat on which I remained for over an hour watching the birds through my glass and taking down brief notes of their behaviour from time to time. The lumber screened me somewhat from their view, but I doubt if this made any particular difference; for they did not seem to notice me when I stood up and walked about. Those nearest at hand were within shotgun range, those farthest removed not over two hundred yards away; the others were dispersed over the intermediate space, occurring most numerous, perhaps, about midway between its outer and inner confines, one hundred yards or so from where I sat. As many of them kept diving and shifting under water from one group to the next it was impossible to count them accurately, but the total number was not far from sixty. There were about thirty fully adult males, perhaps ten immature males (showing only a little white on cheeks and scapulars), and some twenty females. Most of the females appeared to have unicolorous and dark brown or blackish bills, but one showed a conspicuous bar of golden yellow on the culmen just behind the nail and a well marked dusky band crossing the white on the wing. This bird was evidently closely similar to one that I sent to Professor Baird in December, 1871, which he pronounced to be an example of "*Bucephala Icelandica*"¹ but which I afterwards concluded was an aberrant specimen of *americana*. Another female had a short, abruptly tapering bill which appeared to be *almost wholly of a rich chrome yellow color*. The white on its wings was crossed by a conspicuous black bar and the brown of its head and neck was at least two shades deeper than in any of the other females, while its head had a purplish sheen which showed every time the sunlight struck it at just the right angle. All this I saw most plainly, for the bird was twice within forty yards of me and for half an hour within one hundred yards; moreover it was repeatedly joined by one or more females of the common Golden-eye with which I was thus enabled to directly compare it. Although I do not claim to have positively identified it, I have really no doubt that it was a perfectly typical representative of Barrow's Golden-eye. Dr. C. W. Townsend tells me that he observed a similar looking female near the same place on February 22nd. The one seen by me on the morning of the 27th kept by itself for the most part; but occasionally it joined, or was joined by, some of the American Golden-eyes, and once it swam a long distance in company with the female having the yellow bar on the bill, both birds being followed and *most assiduously courted* by seven or eight full-plumaged Whistler drakes who, moreover, continued to devote themselves to the female Barrow's Golden-eye after the other bird of the same sex (the aberrant *americana*) had left the group.

I had not been long at the lumber pile when the wind died away completely. During the next half hour the entire Basin was almost without a ripple and shining in the sunlight like a burnished mirror. The haze, too, had nearly disappeared. As the sun was behind me its light aided, rather than interfered with, my observation of the Golden-eyes. The females were comparatively inconspicuous, partly because of their sober coloring but also, I thought, because they habit-

¹ cf. Brewster, Auk xxvi, Apr. 1909, pp. 154-155.

ually sank themselves deeper in the water than did the drakes. The latter, whether adult or immature, floated very lightly, showing the greater part of their bodies above the surface. Those in full nuptial plumage were handsome birds whose strongly contrasting black and white coloring made them conspicuous under all conditions and at long distances. When they were near at hand I could see the greenish iridescence on their big, fluffy heads glint and shimmer in the sunlight. Evidently they were quite conscious of their personal attractiveness, and devoted themselves to bringing it to the attention of the females by a variety of odd and interesting motions some of which were calculated to display it to the best advantage. They kept calling, also, uttering a queer, strident note wholly new to me. While thus engaged they were incessantly swimming to and fro, shifting from one group of birds to another and ever seeking or following the females with tireless persistence, but without haste and with a decorous restraint of manner most unusual in courting birds and very interesting to behold. By no means all the fully mature drakes took part in these proceedings. There were at least five or six of them who remained apart from the others, either in solitary state or each in company with a female apparently its mate, and who busied themselves during the entire time I had them under observation in diving for food or floating idly on the glassy surface, preening their feathers every now and then. The others, while actively employed in "showing off", in the presence of the females, indulged, as I have said, in a variety of movements, gesticulations and postures, all more or less grotesque and probably most of them peculiar to the season of love-making if not also characteristic of the ceremonial of Whistler courtship. I saw them all repeated many times under conditions very favorable for close and accurate observation. For convenience of treatment in describing them I shall first designate them by the following terms which, if somewhat fanciful, are, I trust, at least helpfully suggestive:

GESTICULATIONS

1. The *nod*—made with the head.
2. The *kick*—made upward with one or both (?) feet.
3. The *forward thrust*—of the head and neck.
4. The *upward thrust*—of the head and neck.
5. The *back thrust*—of the head and neck.

FIXED AND PECULIAR ATTITUDES

1. The *crouching pose*.
2. The *wounded duck pose*.
3. The *bow-sprit pose*.
4. The *mast-head pose*.
5. The *folded duck-skin pose*.

To these should be added, for purposes of comparison,

6. The *normal pose*—i.e., the position ordinarily taken by birds of both sexes when floating or swimming about.

The love note to which I have alluded may be known as the *bleat*. I do not like this term, for it is not accurately suggestive of the sound; but it comes nearer being so than anything else I can think of—hence its adoption. After hearing it hundreds of times this morning I should describe it as a short, flat, vibrant *paaap* not unlike that of the Woodcock but a trifle more prolonged and also less harsh and incisive. It reminded me somewhat of the blast of a penny trumpet, less forcibly of the wheezy quack of a *drake* Black Duck. It did not

seem loud when uttered within fifty yards of me, yet I could hear it distinctly at four or five times that distance when the air was still. It was sometimes doubled (*paap-paap*) and occasionally trebled (*paap-paa-paa*). I suspected at first that these doubled and trebled notes were produced by two or three birds calling nearly together but on studying the sounds closely I found that their component parts or syllables were each shorter than the normal single call and otherwise slightly different. This led me to conclude that the compound notes were probably made by single birds. Negative evidence supporting this inference was furnished by the fact that whenever I was able to watch several drakes performing in company I noticed that they always called in orderly succession, at distinctly separate intervals, and that their notes were of normal length and form. The intervals, however, were often very brief and when nine or ten birds were engaged at once their voices produced a volume of sound well nigh continuous and lasting perhaps for half a minute or more. This, softened by distance and coming over the glassy, sun-lit water from just where, it would have been difficult to determine had not its author been plainly visible, was by no means unpleasing in its general effect. But when the *paap* was heard near at hand and critically regarded, it did not impress me so favorably. Indeed it is essentially unmusical and decidedly less attractive in quality than the humming-top sound made by the wings in flight to which the Whistler owes its familiar name and which was much in evidence this morning whenever the birds were moving from place to place. They rose from the water with great apparent ease and almost as quickly as Black Duck, despite the absence of wind. When they alighted they often struck the water almost at full speed, just after closing their wings, sending the spray flashing up into the sunshine and ploughing furrows yards in length as they slid over the surface before losing the impetus of flight. Besides the bleat and the whistling of wings I heard them make no other sound.

Just as the *paap* was uttered—or perhaps a fraction of a second later—a slender shower or spurt of water, not unlike that emanating from an old-fashioned, metal garden syringe vigorously used, might often (but by no means invariably) be seen rising immediately behind the bird to a height of one or two feet. Sometimes it was thrown almost straight upwards, but oftener, it followed a long, elliptical or bow-shaped, backward curve, the heavier drops falling to the surface within a yard of the bird, the lighter ones striking two or three yards at its rear. This jet-like puff of mingled drops and spray was sometimes conspicuous at a distance of fully a quarter of a mile. It was produced, without question, by a vigorous and obviously most dextrous upward kick of the Whistler's broad, webbed feet which, indeed, I saw plainly more than once, jerked out of water just as the last drops were ascending into the air. When, as occasionally happened, the jet was doubled in volume, and also apparently somewhat divided at the base, I thought that the bird had made simultaneous use of both feet, but of this I could not be sure for I never actually saw more than one of them. Owing to its force and direction the kick caused the hinder portions of the bird's body to sink perceptibly in the water for an instant, after which these parts bobbed still more obviously upward before recovering the position usual to the floating or swimming bird.

The crouching posture. This was usually assumed directly from the normal swimming attitude and by an almost instantaneous movement, the head being thrust forward well above the surface, the neck deeply curved, the back somewhat humped. After remaining in this posture absolutely motionless for two or three seconds the Whistler would either resume its normal attitude or change to—

The wounded duck posture. In this the bird would lie with head and ex-

tended neck flat on the surface, and with its body so deeply immersed that from bill to tail it showed no part much higher than the rest, looking, indeed, like a stick or reed-stem partly submerged. I have frequently seen a wounded Black Duck or Blue-winged Teal do nearly if not exactly the same thing when trying to escape observation. The Golden-eyes maintained this posture anywhere from one or two to eight or ten seconds at a time.

Forward thrust of head and neck ending in the bowsprit posture. The drakes assumed this attitude by suddenly thrusting their heads and necks forward and upward from the normal position (this was evidently the usual way) or by raising them more slowly from the crouching or the wounded-duck posture. I saw them take it a dozen times or more. On each occasion the bird remained absolutely motionless for several seconds with its neck elongated to the utmost and held perfectly straight and rigid at an angle with the water of about 45° , suggesting the bowsprit of a vessel of ancient type. Although this pose is apparently taken less frequently than some of the others, it appears to be not less deliberate and pronounced than the rest and equally expressive of emotions due primarily to sexual excitement. During its continuance the feathers of the head were sometimes fluffed out, but oftener pressed down so very flat that the head looked scarce thicker than the neck which, because of its unusual elongation, appeared abnormally slender. The bill was only slightly opened. As a rule the bird kept silent when in this position, but twice I *saw*, as well as heard, it bleat. In one of these instances it kicked up water just as it uttered the *paauap*; in the other this action was omitted. When the head was raised to the bow-sprit posture from the crouching or the wounded-duck pose the movement was not especially rapid; but when it was thrust directly forward and upward from the normal position the action was so swift and abrupt that my eye could scarce follow it. Although I witnessed the bowsprit posture a number of times it was assumed less often than either of the two fixed positions which I am about to describe.

Upward thrust of head and neck ending in the mast-head posture.

Ordinarily this movement was complete in itself and made directly from—as well as back to—the normal position. Occasionally, however, it closely preceded or immediately followed a still longer backward swing—yet to be described. In the pose to which it commonly led—i. e., the *mast-head pose*—the Whistler's neck might be elongated and straightened, as in the *bow-sprit posture*, and held stiffly erect, or it might be so shortened and curved that the occiput almost touched the back between the shoulders. In either case the bill was invariably well opened and pointed skyward for several seconds during which the head and neck were kept perfectly rigid. At the close of this brief period of inaction the bird frequently uttered its *paauap* and kicked up spray, but oftener than not I heard no sound and saw no water fly.

Back thrust of head and neck ending in the folded duck-skin posture. Sometimes made from the mast-head posture but far oftener directly from the normal position, by a single uninterrupted upward and backward swing of the head and neck; this movement was so swift and sudden that I often failed to follow it even when watching for it with my attention concentrated on a bird which I felt confident was about to make it. At its termination the neck lay extended along the back and so very flat and close that it was scarce noticeable. The head showed conspicuously enough, resting apparently on the occiput at a point anywhere between the middle of the back and the rump, with the widely-parted mandibles pointing straight upward. When in this posture the bird bore a ludicrously close resemblance to a duck skin prepared after the style so much in vogue thirty or

forty years ago, that is to say with the neck folded over on the back. In the skin, however, the head was differently disposed, being placed on its side to save as much vertical space as possible in the cabinet drawer. The living bird would ordinarily remain in the attitude just described from half a second to a full second or perhaps two seconds but rarely longer than that. At the close of this brief period of inaction the head and neck would swing forward, usually less rapidly and abruptly than when carried backward, sometimes pausing for a moment when the mast-head posture might be taken, but, as a rule, continuing to move without decided halt until the normal position was resumed. Rather oftener than not this entire performance was unaccompanied by any sound that reached my ears, even when the birds were near at hand, but not infrequently the *pa-a-a-p* was heard. As nearly as I could ascertain it was given only when the head was raised above the back or shoulders and either moving slowly forward or fixed for an instant, perhaps in the mast-head position; but it was difficult to be sure about this, for allowance had to be made for the time required for sound to travel one or perhaps two hundred yards. It is possible, therefore, that the note was occasionally uttered when the occiput of the bird was still resting on its back or rump, but if so I failed to satisfy myself that such was ever the case. The best evidence as to the precise instant when the call was emitted was afforded, I thought, by the shower of water that the bird usually (but by no means invariably) kicked into the air when calling. As nearly as I was able to determine, this action either accompanied or very closely followed the production of the vocal note. It may be however that the interval between the two is longer than my observations have led me to suppose.

The Whistler drakes often indulged in forms of gesturing or posturing more or less nearly akin to some of those already described yet different in certain respects. Thus they would sometimes take the bowsprit or topmast posture without becoming rigid in it or maintaining it for more than a fraction of a second. Frequently they would dip their bills in the water and then extend them as far forward or upward as they could well reach, at the same time opening and closing their mandibles and quivering their throats as if swallowing rather violently. On closely approaching one another or one of the females they often bobbed their heads up and down two or three times in quick succession. This seemed to be a form of polite salutation, but it may have had a different meaning. During most of the more pronounced movements of the head, and not infrequently when it was held at rest, its feathers were alternately raised or fluffed and depressed or flattened down, so that at one instant it looked almost twice and at the next barely one-half its usual size. This was probably done to show the plumage of the head to the best advantage. At least I so concluded as I watched its greenish sheen flash and glimmer in the sunlight and then disappear, to blaze out again with renewed lustre a moment later. The changes in the adjustment of the feathers of the head resulted also in striking and very interesting variations in its apparent shape.

When two or more males were showing off in the presence of the females they seemed to perform in a spirit of friendly, or, at least, dispassionate, rivalry. Not once during the entire morning did I see one of them exhibit any trace of animosity or unfriendliness towards another. There were no threatening or intimidating gestures and no apparent desire to interfere with one another in any way even when several males were grouped about a single female. Indeed they appeared to be almost wholly absorbed in their attentions to the females and to maintain towards one another an air of cool yet perfectly polite indifference or aloofness. This apparent absence of any sexual jealousy on their part struck me as being very re-

markable. I wonder if it continues to be absent later in the season when sexual intercourse is near at hand.

The more elaborate of the ceremonials of courtship above described were seldom if ever performed this morning by solitary males, even when accompanied by females, nor did they occur when females were absent or far removed. Indeed I witnessed them only when at least two or three, oftener four or five, and sometimes as many as *nine* drakes were in rather close association with one or more females. Often the males would collect about a female in a rather scattered group and entertain her for minutes at a time by their grotesque actions and peculiar love calls. Whenever this happened the female remained, for the most part, comparatively inactive and apparently quite indifferent to the attentions of her showy admirers, although she might occasionally single out and obviously encourage one of them by approaching him closely and bobbing her head up and down a few times. To this salutation he would immediately respond by a corresponding action before beginning his more elaborate performances again. Sometimes the female would suddenly assume the crouching posture which would be instantly imitated by one or more of the males. Once I saw a bird which was unquestionably a female, first nod, next crouch, and then take the bowsprit pose! This behaviour on her part created intense excitement among the attendant drakes who, to the number of at least five or six, crowded close about her for a moment, but were quickly dispersed, I thought by some aggressive movement on her part although the whole thing occurred so quickly that I could not see exactly what happened at the end.

For nearly half an hour a picturesque line of birds, consisting of nine full plumaged males and two females, paraded on the glassy water well off shore and about two hundred yards from where I was sitting. They swam back and forth, over a perfectly straight course three hundred yards and more in length, moving slowly but steadily in single file, the females close together and ever in the lead, the proud drakes following them and each other at intervals varying from six or ten to fifteen or twenty feet. Although this orderly procession seldom halted, even for an instant, the males were almost incessantly posing and bleating and kicking up the little jets of water at their sterns, as they glided sedately over the calm surface of the bay. Apparently they performed by turns, not in any regular order nor at uniform intervals, but wholly at hap-hazard as far as sequence was concerned, although each bird seemed to take pains not to begin until his immediate predecessor had nearly or quite finished. The females swam slowly on in advance without once turning their heads or giving other evidence that they noted what was happening behind them; nevertheless, it probably did not escape their close and critical attention, for ducks, like many other birds, can see well enough to the rear when their bills are pointing straight ahead. I watched this scene with absorbing interest because of its novelty and picturesqueness. A small group of Golden-eyes which, for a shorter time, paraded in a similar manner nearer at hand, included three drakes in full nuptial dress and two in immature plumage.

The latter birds were distinguishable from the single female to which they were paying attention, only by their much larger size and by the presence of a few white feathers among their scapulars and on their heads. Yet they posed and bleated to her quite as ardently as did the older drakes, seeming, indeed, to have already mastered all the arts and graces of Whistler courtship.

When not absorbed in watching the courting birds I paid some rather close attention to those which were diving for food. As far as I could see (and they were very near me at times) their wings were always kept tightly closed or folded as long as they remained in sight. Their tails were invariably spread to the utmost

possible width just as they disappeared. As a rule the downward plunge was made without much apparent effort, the bird simply immersing its head and then vanishing with surprising if not mysterious quickness. Occasionally, however, it would spring upwards and forward in the manner of a Grebe or Merganser, sometimes showing not only the entire outline of the lower parts of the body above the surface but also the whole of the legs and feet, just before re-entering the water. This may be done to give greater impetus to the descent; but I observed that the same bird would sometimes alternate one method with the other during a succession of dives made over exactly the same spot.

THE PALLID WREN-TIT (*CHAMAEA FLISCLATA HENSHAWI*)

By J. H. BOWLES

TO any bird student who has not previously made their acquaintance, the Wren-Tit must at once stand in the foremost rank of all the California birds. *C. f. henshawii* is the form of this species that is found in the vicinity of Santa Barbara, the locality in which all of the following notes have been made.

The Wren-Tits are most certainly well named, for their general appearance and shape at once remind one of a greatly magnified Bush-Tit. Add to this their wren-like fondness for haunting the ground and low brush, peering out at you with tail aloft, and the name forms an ideal combination. Occasionally, however, they may be seen gleaning insects among the topmost branches of a live-oak, the tit in them seeming to have asserted the mastery over the wren for the time being.

Eternal cheerfulness is theirs, beyond a doubt, for they sing every day in the year, be it rain or shine. Their two songs differ completely, and here again they seem to demonstrate their right to a hyphenated family name. The most common song is a rather loud and very pleasing wren-like trill, which, incidentally, nine people out of ten in southern California will tell you is that of the Canyon Wren. The other song is a succession of about six or eight, loud and somewhat chicken-like *peeps*, rapidly executed and hardly worthy of being called a song. It is quite different from anything else that I have ever heard, except that it forms a very fair elaboration of what some of the Tits consider their song notes.

In the matter of food they appear to be very nearly omnivorous. Their main staples are bugs, beetles, larvae and insects of all descriptions, but they are also fond of the smaller berries, such as those of the Poison Oak (*Rhus diversiloba*). For a time I made some attempts at trapping the smaller mammals, using dry bread or cheese as baits, but it was necessary to give this up, as upon every visit to the traps I found that one or more Wren-Tits had succumbed to the temptation of these new items on the bill of fare.

Around Santa Barbara they are resident throughout the year, and to the best of my belief remain mated for life. This theory is based upon the fact that they are almost invariably found travelling in couples; for, should you, at any season come upon one bird, another is sure to be only a few feet distant. Nest building commences during the last two weeks of March, my earliest full set of fresh eggs being found on April 4. From that time, eggs may be found until at least the second week in May, but I have seen no evidence to conclude that more than one brood is reared in the season. A rocky hillside, thickly covered with live-oak bushes is the favorite nesting site in this locality, though they may sometimes be

found nesting in the sage (*Artemisia*) of the lowland country. The nest, in both location and construction, is not in the least what the uninitiated oölogist would expect in this type of bird. The first one I ever saw was building and, no birds being present, I felt sure it must belong to some kind of flycatcher that had escaped my notice, so closely did it resemble certain types of nests of the Traill Flycatcher (*Empidonax trailli trailli*) that I have found. It was a perfectly typical nest, both in location and construction, being placed about one foot from the ground in the crotch of a live-oak bush that stood in a dense thicket of the same. It is built externally of silky plant fibres, fine strips of bark and fine dead grass, the lining being mostly of horse hair. The measurements are externally four inches in diameter, by a little less than three inches in depth; internal dimensions being two and one-quarter inches wide, by one and three-quarters deep. I have seen one nest as high as five feet above the ground, but this is most unusual, three feet up being considerably higher than the average.

The eggs in all the nests that I have examined were invariably four in number to the set. They are most attractive in appearance, being greenish blue in color, without markings of any kind. In shape they are a rounded-oval, as a rule, averaging in size about .74×.57 inches.

The female appears to commence covering the eggs much of the time before the set is completed, as on two occasions I have found the bird sitting on three eggs, to which a fourth was added on the day following. Even under these circumstances the bird is exceedingly loath to leave the nest, and after incubation commences it is necessary to startle her very considerably, or remove her by hand, in order to examine the contents of the nest. She will then very often remain in the same bush, scolding in a low, harsh *ch-ch-ch*, continuously and very rapidly repeated. This usually brings up the male, who looks over the situation for a moment or two and then returns to his singing, feeling apparently not the least sympathy with the vigorous protests of his mate. I have noticed this habit in several other varieties of birds, and have often asked myself if it might not, instead of lack of sympathy, be another method of endeavoring to draw the attention of an intruder away from the nest.

COLLECTING SOCORRO AND BLACK PETRELS IN LOWER CALIFORNIA

By PINGREE L. OSBURN

WITH TWO PHOTOS

THIS Genus of birds (*Oceanodroma*) is to the author one of unusual interest. Every available opportunity that has come my way for five years past has been made use of to become better acquainted with sea fowl in general and the Petrels in particular. For this reason the Los Coronados Islands were visited several times in recent years, each stay consisting of from one day to two weeks. While I was disappointed by not finding these particular birds on all my trips, the entire number of days ashore in active work among their burrows would number a satisfactory total.

The two trips of most importance were on July 3, 1909 (the third trip), and June 19 of the present year (the sixth trip). The first was in company with Mr. Willis Ritchie, and the second with Mr. A. B. Howell. I wish to hereby acknowl-

edge my indebtedness to Mr. Ritchie for his vigorous, unselfish work throughout our entire stay.

On the last trip I was compelled through lack of other means of transportation to make the return trip in a large sea-going cedar canoe, which was manned by two stalwart pearl divers. These islands are now isolated. A year ago a noisy little steamer made the trip down the forty miles of intervening water from San Diego irregularly every week, but this has been abandoned now and the islands are only visited by coasting fishermen, or perhaps smugglers.

My first impression of the two middle islands, where most of these observations were taken, was unfavorable. Devoid of vegetation around the sides except for a spot here and there of scrub ice plant or wind blown cactus, they appear barren and desolate. By the time Petrels are ready to lay the Brandt Cormorants (*Phalacrocorax penicillatus*) and Western Gulls (*Larus occidentalis*), which make their homes on the rocks, are deserting their summer homes. Skirting the outlying rocks, an occasional flitting Coronado Song Sparrow (*Melospiza m. coronatorum*)



Fig. 16. MIDDLE ISLAND, LOS CORONADOS, SHOWING AREA OCCUPIED BY PETRELS

or San Clemente House Finch (*Carpodacus mexicanus clementis*) were the only land birds seen. These with an alarmed Black Oystercatcher (*Haematopus bachmani*) and a few Western Gulls perched overhead on prominent rocks were all the birds in sight. Not until we had landed could the amphitheatre, the chief home of the Petrels, be distinctly seen. But here in a few hours time, on my very first visit in 1905, I found enough to prove my first impression entirely wrong. Desolate? No! For hundreds of stout little feathered beings resorted to this spot for their summer home.

The easternmost of the two middle islands I found to be the most accessible; for while landing on the other middle island our cedar canoe was overturned in deep water, and shot gun, kodak, and egg boxes were drenched, but finally rescued. On this island I found Socorro Petrels in the greatest numbers, and with hard work succeeded in collecting a representative series of eggs on July 3, 1909. Mr. Ritchie and I took in all twenty-two sets of Socorro Petrel and five sets of Black Petrel. At this date the eggs were fresh, but the Socorro Petrels were not breeding com-

monly. A favorite locality for burrows was in the loose loamy soil on the slope of the saddle at the east end of the island. A few were found nesting on a steep, treacherous, open cliff on the western exposure. Here the birds had burrowed in under loose, flat rocks; and a tunnel enlarged sufficiently to admit one's hand would usually bring the entire immediate vicinity down on one's head. This mode was given up after a few attempts at dodging boulders and picking a "non-cactus" place for a foothold.

In the amphitheatre the nests were much more accessible, some burrows being not more than ten inches in length, but others were dug out where the egg was deposited five feet from the entrance. The longest burrows were zig-zag tunnels around loose boulders in the softest soil, and took considerable effort before the end was reached. The nests themselves were usually composed of matted grass and feathers with an under layer of sticks and pebbles. I found some with merely a scratched-out depression in the soft earth, with finely powdered loam heaped around the rim of the hollow to hold the eggs. The burrows showed but little

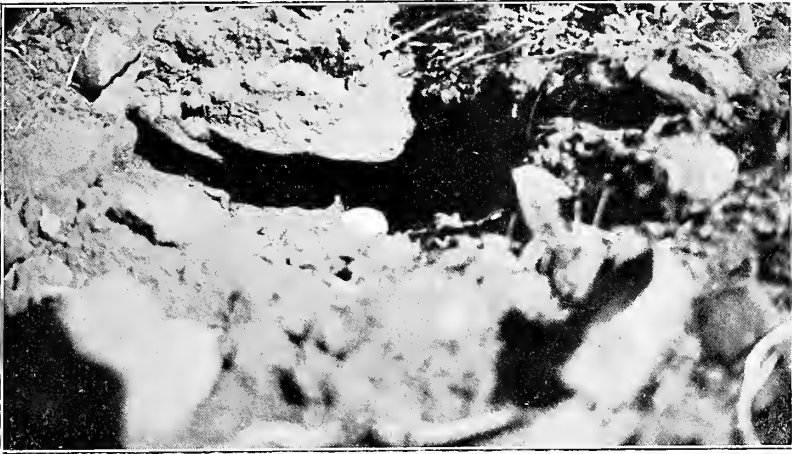


Fig. 17. BURROW OF BLACK PETREL, EXPOSED TO SHOW NEST CAVITY; ENTRANCE AT LEFT

signs of the incoming of the birds as compared with those of the Murrelets. I often found large caves, one measuring at least fifteen feet square, carpeted with soft earth which was sensitive to impressions. The floor of one large cave was a mass of tiny overlapping Murrelet tracks. In this cave the Murrelets burrowed back in to almost inaccessible crannies and crevices, where they were easily found, but hard to reach. They probably use these caves as convenient roosting grounds or for nocturnal love walks, as but few of the burrows in such localities were found to be nesting sites, and none contained more than fragments of faded egg shells. I used a candle for locating eggs in one particularly deep cave, and lying prone shoved the light down the shaft ahead of me until for want of oxygen it flickered and failed. This cave was a tight fit and my companion was luckily there and pulled me out by the heels.

The sharp, thorny, buckthorn bushes completely obscure the burrows of the Petrels on the brushy area, and offer great protection to them also, as our gloves in shreds were witnesses after a few hours work. Early in the season when the islands were visited, two birds were usually found in a burrow; later, brooding birds only.

Nearly always the eggs were not quite at the end of the passage. While probably not a premeditated fact, this often helped the birds to escape by frantically digging into another passage. The strong musky odor of the Petrel does not become disagreeable, at least not for several hours. From the moment your hand touches the feathery mass until he makes his exit, the Petrel makes use of this weapon of defense. Drawing the upper and lower mandibles widely apart, he emits a thin strong stream of musky oil.

I found Petrels nesting far above the sea on top of the islands. The main colony was at least thirty feet above the water, and none were as close to the water's edge as were the Murrelets, which I often found in caves whose entrances were submerged in deep water. As a rule the Petrels nested in more secure localities than the Murrelets, and were less often found with damaged egg shells. Half the Murrelets eggs found were dented or slightly cracked by loose pebbles from the roof of the burrow, and a set with an entirely unblemished shell was uncommon. The greatest difference in the nesting of the two Petrels was in burrowing sites and laying dates. The Black Petrels lay earlier. They were more abundant than the Socorro Petrel on the *largest* middle island, and while digging Murrelets I found several burrows containing Petrels. Here also among the hard boulders we found burrows where the brooding bird was in full view and yet inaccessible, so small was the opening. No young birds or immatures of either form were seen, and from incubation stages noted I should judge the hatching point is reached between July 15 and August 15. We saw little of the birds except in their burrows, but they were very active at night.

Of the skins I collected, there is great variation shown in the series of *O. socorroensis*. In two examples the upper tail coverts are white, with dusky median stripes; while in others these coverts are entirely dusky. There is a marked variation in size, also.

The eggs of *O. socorroensis* are white and either minutely speckled with lavender and brown, in a wreath about the larger end, or clear and immaculate. Average measurements (in inches), 1.20×0.90 .

The eggs of *O. melania* are white with almost imperceptible traces of brownish speckling. They do not show variation in size or color as much as do those of *O. socorroensis*. The eggs average in inches, 1.45×1.05 . Specimens of *O. melania* are unvarying in plumage. My series of skins show the uniform sooty-black color with the exception of the usual light wing-patch, which is characteristic of the dark-colored species of *Oceanodroma*.

FROM FIELD AND STUDY

A Second Occurrence of the Bohemian Waxwing in Southern California.—In THE CONDOR, vol. VII, page 77, a Bohemian Waxwing is recorded as having been taken at Victorville, December 31, 1904. It is the first record of that bird in California outside of Plumas and Lassen counties.

On December 13, 1910, I took an adult female Bohemian Waxwing (*Bombycilla garrula*), six miles east of Daggett, San Bernardino County, which is about thirty miles north and fifteen miles east of Victorville. The bird was alone and was perched on the topmost limb of a dead cottonwood when I shot it.

The elevation here is about 2000 feet. Unlike the previous record we had had no storm in the vicinity, the weather having been unusually mild.—CHESTER LAMB.

The Western Winter Wren (*Tannus hiemalis pacificus*) at Santa Barbara.—On November 14, 1910, Mr. Watson Snyder of Newark, N. J., told me he saw one of these wrens in a small canyon on the outskirts of town. We visited the locality on the day following, but were unsuccessful in locating our bird.

On November 26, Mr. Snyder reported another in a canyon situated a number of miles from where he saw the first. I visited this place on the day following and was successful in seeing three, of which I secured one for my collection.—J. H. BOWLES.

Notes from Ventura County, California.—On May 12, 1910, Sidney Peyton found a set of eggs of Anthony Green Heron (*Butorides virescens anthonyi*) in an old crow's nest in a swamp east of the Sespe River. It consisted of six considerably incubated eggs.

On October 23, 1910, I found a nest of the Green-backed Goldfinch (*Astragalinus ps. hesperophilus*) in a walnut tree near my home at Sespe. It contained four nearly grown young. They left the nest on October 29. Harold Pyle found a nest on October 26 which contained four young birds. They left the nest November 8.—LAWRENCE PEYTON.

A Stray White Pelican.—I recently inspected the skin of a White Pelican (*Pelecanus erythrorhynchos*) that was captured on November 27 in the vicinity of Lankershim, Los Angeles County, California. It had been wounded by a rifle ball, but when found was still alive and very pugnacious, though the appearance of the surrounding ground indicated that it had had an all night fight with the coyotes. It died soon after.—J. EUGENE LAW.

Notes from Santa Barbara.—The Western Grasshopper Sparrow (*Ammodramus sava-narum bimaculatus*) is a common summer resident in the vicinity of Santa Barbara, California. I secured a set of five eggs last summer and found several nests with young.

Wilson Phalaropes (*Steganopus tricolor*) stayed around here a good deal this fall. I saw a pair on July 22, three together on August 3, and a pair on September 8; one of the latter was shot. They all stayed around for some time; but these three dates must certainly have been for different birds.

I first saw the Pectoral Sandpiper (*Pisobia maculata*) this fall on September 8, and collected one on September 9.—J. H. BOWLES.

Notes from Sacaton, Arizona.—The fall of 1910 was prolific in the occurrence of unusual bird visitors, and I send the following notes concerning them.

September 3, a Rocky Mountain Nuthatch (*Sitta carolinensis nelsoni*) made his appearance and was later joined by several more. They were here till the first week in December, when I saw the last one.

September 5, I secured a male Ant-eating Woodpecker (*Melanerpes formicivorus formicivorus*), being the second one seen in three years. When first seen, he was at work on a mesquite wood-pile in the back-yard.

October 5, a Red-breasted Nuthatch (*Sitta canadensis*) was seen on a cement irrigating ditch, which was probably rather poor picking. Later in the day I saw him or another, and during the month following I saw several. One day I noticed one fly several times from a tree trunk, warbler-like, and snap up worms hanging at the ends of webs.

The most incongruous combination was a Clarke Nutcracker (*Nucifraga columbiana*) perched on a Deglet Noor date tree the morning of October 17. He was quite tame and though an instinct demanded his acquisition as an avian record for this locality I refrained and he departed in peace about noon.

His place however was taken that afternoon by a Long-crested Jay (*Cyanocitta stelleri diademata*) which I saw in some cotton-wood trees along a field of Egyptian cotton. Several of these jays were seen the next day and were around till November 22 when the last was seen. The most seen at one time were seven in a flock. They were strangely silent for these jays, perhaps feeling like strangers in a strange land.

October 23, a Townsend Solitaire (*Myadestes townsendi*) was seen in the date grove.

November 21, while driving across the desert, I found a Whistling Swan (*Olor columbianus*) with a crippled wing. He could half fly and half run and it took quite a chase to run him down. It was a long ways from water so I gave him a drink from my canteen which he seemed glad to get, and putting him in the wagon took him home. Here I placed him in a big irrigating ditch with grassy banks and gave him corn, wheat and bread. I hoped his wing would heal but he grew weaker and died the fourth day.—M. FRENCH GILMAN.

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EDITORIAL NOTES AND NEWS

In the vote regarding simplified spelling, 107 Cooper Club members expressed their opinion distinctly one way or the other. There were 44 votes for the continued use of simplified spelling in our magazine and 63 votes against it. Thus the Editor was disappointed in his cherished hope. He has become convinced that people are innately averse to an *abrupt* change even when admittedly to a considerable degree beneficial in its bearings. Just as with song sparrows and chipmunks, modifications, in adjustment to changing environment, are matters of slow and gradual transition. As with these animals, too, variations are more extreme and rapid on the frontier of invasion. The species becomes plastic under stress of new conditions. The vote in the West alone gives a majority for simplified spelling.

We are informed that Mr. Wilfred H. Osgood, with Mr. Stanley G. Jewett as assistant, is about to leave for South America where zoological field work is to be carried on in the Andes Mountains in Venezuela and Colombia. This expedition is sent out under the auspices of the Field Museum of Natural History, Chicago.

The Northern Division of the Cooper Club has settled upon the third Saturday evening of each month as a regular time of meeting. Distant members who happen to visit the San Francisco Bay region should remember this, and also that until further notice meetings are

held in the research room of the Museum of Vertebrate Zoology, Berkeley.

Austin Paul Smith has established himself at Orizaba, Mexico, for a period of field work with the birds of that region.

Denver newspapers report that great numbers of wild ducks have died in the Bear River district of Utah. There is apparently some epidemic resembling the roup of chickens, which is afflicting the water fowl to such an extent that gunners are leaving them alone, not finding it enjoyable to shoot or eat sick birds.

Students of California ornithology will be interested to know that there are at present 525 species of birds definitely recorded from within the limits of the State of California. Of these, 163 are water birds and 362 land birds.

We are pleased to announce that Mr. W. L. Dawson has come south with carefully elaborated plans for the preparation of a sumptuous and exhaustive work upon the Birds of California. Mr. Dawson brings to his proposed task a unique equipment. Endowed with excellent taste, and skilled in photography, he is also schooled in business methods and does his own "managing." He writes with great acceptance and his knowledge of the scientific framework of his profession is beyond that of most "popular" writers. While he is not a "native son", he is thoroughly imbued with the western spirit; and his experience of fifteen years in the State of Washington gives him a great leverage in the ready understanding of the birds of California. Moreover, his very ability to look at the local conditions with fresh eyes will be a positive advantage in the exposition of our bird life, when to it is added the experience of older workers who long ago ceased to wonder. A keen eye, a ready pen, a sparkling style, coupled with a conscientious striving for accuracy of statement, and, above all, a sense of what the public needs, make our friend from Washington singularly well fitted to lead in an enterprise such as the one contemplated.

Mr. Dawson comes frankly asking the help of the members of the Cooper Ornithological Club. His task would be difficult of accomplishment alone. He must, in the nature of the case, be largely dependent upon the accumulated results of the labor of others, both published and unpublished. And since even this is insufficient, as yet, as we all know, he is especially desirous of enlisting the friendly services of as many other bird students as possible in a five year campaign of cooperative observation. Mr. Dawson will himself spend the best part of the next five years afield with his cameras and a trained assistant, visiting out-of-the-way places, as well as the better known bird-haunts, in quest of material for the new book. In this way he will be able to familiarize himself with the ground so as to edit the work of others intelligently, as well as to make some original contribution to our knowledge of the birds of California.

There can be no question of our need for just

such a work as the one proposed. Photographic processes and methods of reproduction have now reached a stage of perfection which makes the full and artistic representation of our bird-life not only desirable but imperative. There is, so far as we have been informed, no promise of any other such work in the reasonably near future. Yet the popular interest in birds is really very great. It is undeveloped, latent, often unintelligent indeed, but it is really more powerful and more nearly universal than many of us who follow ornithology as a hobby or as a science are aware. A work addressed to this larger public will be of the greatest value, not only in the direct service of that public, but in guaranteeing a more intelligent consideration of the legislative and protective measures and in arousing a more ready support for museums and other scientific institutions. Mr. Dawson is the man to do this work in California and we rejoice at his coming.

We own we are a little dazed by the brilliancy of the program outlined by the author: editions de luxe, and illustrations on a scale of magnificence rarely if ever before attempted in the history of American bird-book making; but Mr. Dawson made good in Washington, both as a writer and as a book-builder, and there is no reason that we can see why he should not achieve success here in California.

Mr. Dawson's plans have been enthusiastically ratified in open meeting by both divisions of the Cooper Club; and the Club is pledged to extend to the new enterprise its fullest moral support. The name of the Club is to be associated with that of the author upon the title page of "The Birds of California" and the work is to be, in so far as it is possible, a cooperative one.

With characteristic energy the author launched the canvass for the new work in San Francisco immediately upon receiving the Club's endorsement and under the patronage of the Messrs. Mailliard has succeeded in enlisting enough influential support to assure a good beginning and to justify the expectation of a general public interest. He has now gone to Pasadena and Los Angeles to develop the local interest there, and expects at the close of a six weeks campaign to complete the organization of The Birds of California Publishing Company which is to finance the new undertaking. In a succeeding issue of this magazine we shall expect Mr. Dawson to set forth in detail the scope and specifications of the proposed work, as well as to tell us more particularly how Cooper Club members may cooperate.

PUBLICATIONS REVIEWED

NOTES ON THE BIRDS OF PIMA COUNTY, ARIZONA. By STEPHEN SARGENT VISHNER. [From *The Auk*, vol. XXVII, July 1910, pp. 279-288.]

This list of 127 species covers a part of the ground that was treated in great detail by W. E. D. Scott in *The Auk* for 1886-88, and is published partly for the purpose of adding several species not included in Scott's list, and largely

(according to the introduction) with "the desire to add a mite to the far too meagre knowledge of the habits and songs of many interesting birds." As it is seldom that more than a line or two is devoted to a species, this phase of the subject is perhaps not entered into as exhaustively as might be expected from the introductory remark. Two species are here recorded from Arizona for the first time, the White-headed Woodpecker and the Golden Plover, neither from specimens actually secured. The list is all through compared with that of Scott's and it is put forward largely as a compilation of the additional ornithological notes and information accumulated since the publication of the latter. Yet we find numerous species recorded precisely as Scott treated them, but placed in the category of those found under different conditions.

The Green-tailed Towhee, Lutescent Warbler, and Yellow-headed Blackbird are casually mentioned as breeding in the vicinity of Tucson, records of sufficient importance to merit more detailed accounts—to say the least. So also with Mr. Visser's working out of the distribution of various closely related sub-species. To say that *Dendroica auduboni nigrifrons* is "resident" on the mountain tops, while *D. auduboni auduboni* nests in the valleys, that *Phalaenoptilus nuttalli nitidus* breeds in the mountains and *P. nuttalli nuttalli* in the valleys, and that *Sialia mexicana occidentalis* breeds in the spruces and *S. m. bairdi* in the pines, is, perhaps, definite enough; but these are positive statements that require much field work and the collecting of many specimens to back them up before they can be expected to be generally accepted.

On the whole, the important records are not put forward in such a way as to invite confidence in them, the statements regarding certain of the species are exactly such as have already been published about the same birds in the same general region, and the comments upon others are of absolute unimportance.

This list does not seem to have been carefully considered, and might well have been left unpublished.—H. S. S.

WATER BIRDS OF THE VICINITY OF POINT PINOS, CALIFORNIA, by ROLLO HOWARD BECK. (Proceedings Calif. Acad. Sciences, 4th ser., vol. iii, pp. 57-72; issued Sep. 17, 1910).

In this paper we are provided with the most important contribution to a knowledge of the oceanic bird-life of California since the appearance of the last one of Loomis's series of papers, in December, 1900. During the past seven years Beck, in his work for the California Academy of Sciences, has spent all put together 26 months in collecting water birds of Monterey Bay, with Pacific Grove as a basis. The results of his work in specimens, up to the San

Francisco fire of April, 1906, were all destroyed. But some of the field notes of this period are included in the present paper along with those resulting from the work in subsequent years. The present paper is based primarily on Beck's field observations; but critical notes on the large series of specimens secured since the fire are often added, and for these Loomis and Gifford, of the Academy's curatorial staff, are evidently largely responsible.

The paper under consideration is concisely in excellent form, literarily and typographically, practically ideal in the latter respect, a rather rare thing in this day of hurriedly proof-read publications. The great value in the paper lies in the large addition to our knowledge of the seasonal occurrence of the species dealt with, especially the Jaegers, Gulls, Terns and Shearwaters. One species is newly recorded not only for California but for the American side of the Pacific, namely the Flesh-footed Shearwater (*Puffinus carneipes*), of which Beck has taken no less than ten specimens, from 1903 to 1907. Of *Puffinus bulleri*, of which only one example was previously known from Californian waters, ten more specimens have been secured, all in the fall. Of the Skua (*Megalestis skua*) a second specimen for California is recorded. A number of species previously thought to be of but casual occurrence along the Californian coast, have been found by Beck to occur regularly in large numbers. Only concentrated and long-continued work, such as this has been, can be expected to yield a knowledge of the true status of any pelagic avifauna.

The reader of the paper in hand is at once impressed with the uniform occurrence of certain usages at variance with ruling custom among American ornithologists. Trinomials are tabooed; but instead of treating all forms (both small-species and remotely divergent species) as binomials, all of the small-species or subspecies (evidently forms which are found to intergrade in any way) are lumped under a binomial, the earliest nomenclaturally appropriate name being employed. Thus our California Murre is just Murre, *Uria troille*; the Pacific Kittiwake is just Kittiwake, *Rissa tridactyla*; etc. This does not appear to be an advantageous move in the interests of a better knowledge either of the ranges or of the migration-routes of birds. The recognition of even the smallest geographic variants is essential. This was emphasized by Stejneger many years ago (*Birds of Kamtschatka*, 1885, p. 348), and the principle holds with increasing force.

The reader must recognize the peculiar usage above referred to, in weighing such records as that of "*Ereunetes pusillus*" for California, which is given as including *E. mauri*. The implication is that intergrades have been found between *E. pusillus* and *E. mauri*; but

no data is presented in this regard. In the same way, *Fulmarus rodgersi* is lumped under *F. glacialis*.

Doubt is cast upon the validity of *Brachyrhamphus craverii* as distinct from *B. hypoleucus*. *Larus brachyrhynchus* is combined with *Larus canus*; that is, the separate existence of a species *brachyrhynchus* is denied. This is at variance with the idea of Bishop (CONDOR XII, 1910, 174) that previous records of *Larus canus* for California should probably be referred to *Larus delawarensis*.

It would of course have been of enormous interest and value if the data substantiating of the above conclusions had been presented. However, the reader of the paper under review is left with the feeling that this is but a preliminary report, and that extended critical treatment may be expected to follow in due course. Certainly no ornithologists in the country are in a more fortunate position for the handling of problems of this sort than the persons connected with the California Academy of Sciences, whose Museum contains at the present time with little doubt the finest collection of water birds in America.—J. GRINNELL.

METHODS OF ATTRACTING BIRDS. By GILBERT H. TRAFTON; with thirty-nine illustrations (twenty-four of them from photographs) and a chart of fruits eaten by birds. Houghton Mifflin Company, Boston, September 1910, pp. xv + 164; price \$1.25 net.

This book, published under the auspices of the National Association of Audubon Societies, "has been written from two view-points, that of birds and that of human beings; for the protection of the former and the pleasure of the latter."

It is written by the Supervisor of Nature-Study, Passaic, N. J., and gives beside his own experience, the results of many observers, thus summarizing very completely the work being done throughout the country. An appendix gives a list of ninety-one to whose contributions the author has had access, or who have furnished information through personal correspondence.

The practical value of the book in nature-study in the schools should be great; for the methods given have thus had the test of experience. A statement of the results obtained makes them the more valuable.

The chapters deal with the need and value of attracting birds; nesting houses; attracting the winter birds; drinking and bathing fountains; planting trees, shrubs, and vines; bird-protection in schools, and bird photography.

Special drawings bring out details of plans and constructions presented.

The methods given would seem to be well calculated to attain the results desired in the Audubon movement, by inculcating a love for

birds in the young student through his own work in providing protection for them.—H. T. C.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

OCTOBER.—The October meeting of the Northern Division of the Club was held in the research room of the Museum of Vertebrate Zoology on the evening of October 22, with the following members present: J. Grinnell, J. Mailliard, Dr. C. Hart Merriam, L. H. Miller, M. Ray, Oluf Heinemann, D. Cohen, W. P. Taylor, Herbert Coggins, H. Carriger, T. I. Storer, H. C. Bryant and Mr. Judd. Dudley Brown was present as visitor.

The meeting was called to order by President Grinnell who called on Mr. W. P. Taylor to give the paper of the evening. Mr. Taylor gave a very interesting talk, illustrated by a number of skins, about the birds of the Modoc Region of northeastern California. At the conclusion of Mr. Taylor's talk the members indulged in a general discussion relative to the birds collected and as Dr. Merriam had explored at the same locality in former years the same proved very interesting.

The regular order of business was now taken up and the minutes of the last meeting were read, and approved as read. The minutes of the Southern Division were also read. The Secretary was instructed to cast the unanimous ballot of those present electing to active membership Messrs. Bryant, Stern, Storer, H. Coggins, Irving, Messinger and Beers, whose names had been presented at a former meeting. The applications of Dudley C. Brown, proposed by H. W. Carriger, Carl L. Hubbs, by L. H. Miller, and Donald R. Dickey, by Mr. Chambers, were presented and laid over till next meeting. Mr. Grinnell stated that W. Leon Dawson was coming to San Francisco, and would probably locate in California and spend the next four or five years in studying the birds of the State. Mr. Grinnell also spoke about the use of vernacular names and expressed his preference for California Condor, California Linnet, and Western Kingbird, instead of California Vulture, House Finch and Arkansas Kingbird as given in the new Check-List. The matter was discussed by the members present. Donald Cohen stated that the birds presented to the Club some years ago were in a school at Oakland and were being well taken care of. Adjourned.—H. W. CARRIGER, *Secretary*.

NOVEMBER.—The November meeting of the Northern Division of the Club was held on the evening of November 19 in the research room of the Museum of Vertebrate Zoology, with the following members present: W. K. Fisher, J.

Grinnell, J. Mailliard, H. S. Swarth, W. P. Taylor, W. Leon Dawson, M. Ray, O. Heinemann, H. Coggins, D. Brown, N. Stern, H. Bryant, P. Judd, T. Storer, and H. W. Carriger. Mr. Carroll was present as a visitor. The meeting was called to order at 8:15 p. m. with President Grinnell in the chair.

Mr. H. L. Coggins, formerly secretary of the Delaware Valley Ornithological Club, was introduced by the president and gave a very interesting account of that society, the interests, activities and membership of the club being briefly outlined in a most interesting and amusing manner.

At the conclusion of Mr. Coggins' talk the business of the club was taken up, and the minutes of the last meeting were read, and approved as read. On motion the secretary was instructed to cast the unanimous ballot of members present electing to active membership the following individuals, whose names were presented at the last meeting: Carl L. Hubbs, Donald R. Dickey, and Dudley H. Brown. The application of Althea R. Sherman, McGregor, Iowa, proposed by Mr. Chambers, was read and laid over till next meeting.

The committee having in charge the revision of the Club's constitution presented a draft of the same, and, on motion, the President referred it to a committee of three, consisting of Messrs. W. P. Taylor, J. Mailliard, and M. Ray. Mr. Grinnell spoke of the advisability of having stated nights on which the Club would meet, and on motion it was decided to meet every third Saturday of each month. The use of vernacular names was again discussed by the members but no definite action was taken.

The President then introduced Mr. W. Leon Dawson, author of the *Birds of Ohio*, and *Birds of Washington*; also secretary of the Caurinus Club of Washington. Mr. Dawson extended greetings from the Caurinus Club, and proceeded to outline his plans in regard to his proposed work on the *Birds of California*.

At the conclusion of Mr. Dawson's talk the members present discussed the matter, and a motion was made by Mr. J. Mailliard, seconded by Mr. W. P. Taylor, that the Cooper Ornithological Club heartily endorse Mr. Dawson's plans, and pledge its moral support and cooperation in the task of preparing a work upon *The Birds of California*. Motion was carried. A motion was made by Mr. W. K. Fisher, seconded by Mr. H. C. Bryant, that Mr. W. Leon Dawson be granted permission to associate the name of the Cooper Ornithological Club with his own on the title page of the forthcoming work, after the following formula: "The Birds of California, by W. Leon Dawson with the cooperation of the members of the Cooper Ornithological Club." This was carried also.

Mr. Dawson expressed his deep appreciation of the support given him. Adjourned.—H. W. CARRIGER, *Secretary*.

DECEMBER.—The December meeting of the Cooper Club was held in the research room of the Museum of Vertebrate Zoology, Berkeley, on the evening of December 17. The meeting was called to order with President Grinnell in the chair, and the following members present: J. Grinnell, H. S. Swarth, M. Ray, O. Heinemann, D. Brown, W. P. Taylor, J. Mailliard, H. Carriger, W. L. Dawson, H. Coggins, and J. L. Sloanaker. Captain F. Kleinschmidt was present as a visitor.

The minutes of the November meeting were read, and approved as read. Southern Division minutes were also read. The committee to whom the revised copy of the constitution was referred reported that they had carefully gone over the same, and, with a few minor changes, recommended that it be adopted. A motion made by Swarth and seconded by Storer that the constitution be adopted subject to approval of the Southern Division was unanimously carried.

President Grinnell spoke in regard to holding the A. O. U. meeting in San Francisco during 1915, and read a circular letter that he had mailed to eastern ornithologists urging such action. A motion was made by Mailliard, seconded by Swarth, that the president appoint a committee of three to see what could be done toward gaining this end. W. P. Taylor, H. Coggins, and M. Ray were appointed.

Mr. Grinnell stated that the vote in regard to simplified spelling in THE CONDOR had decided against such usage. The motion was made and carried deciding that the Club hold its annual banquet, and that the president be instructed to appoint a committee to attend to the same.

The president requested Mr. W. L. Dawson to give a statement regarding the progress of his work, and Mr. Dawson announced that everything looked exceptionally bright. Althea R. Sherman, whose name was presented at the last meeting, was elected a member. The names of Edward Boyer, Sparks, Nevada, and J. D. Sornborger, Rowley, Massachusetts, were proposed by W. Lee Chambers.

The nominations for officers for 1911 were declared open, and the following names were proposed: President, Joseph Mailliard; Vice-president, H. W. Carriger; Secretary, H. S. Swarth; Business Manager, W. Lee Chambers; Editor, Joseph Grinnell.

Mr. J. L. Sloanaker, of Fresno, expressed the desire of the ornithologists of that region to form a Chapter, and was told that the Club would favorably consider such an application if formally presented.

Captain Kleinschmidt gave a detailed and

interesting account of his discovery of the nest and eggs of the rare Spoon-billed Sandpiper in northeastern Siberia. Specimens of the bird, both adults and downy young, were exhibited. Mr. H. S. Swarth, who spent the summer on Vancouver Island, gave a brief talk about his trip. Adjourned.—H. W. CARRIGER, *Secretary*.

SOUTHERN DIVISION

NOVEMBER.—The November meeting of the Southern Division of the Cooper Club was held on Friday evening, November 25, 1910, in Room 1, City Hall, Los Angeles. In the absence of President Morcom the meeting was called to order by Vice-president Lelande, with the following members present: Messrs. Robertson, Chambers, Willett, Osburn, Alphonse Jay, Howell, Shepardson and Lelande. Messrs. Moses and Granville were visitors. In the absence of Secretary Law, Mr. W. Lee Chambers was appointed Secretary pro tem.

The minutes of the October meeting were read and approved. The following applications for membership were presented: Frank Edgar Johnson, Yonkers, N. Y., by Mr. W. Lee Chambers; Fred Granville, Los Angeles, by Mr. Howard Robertson.

Mr. Howard Robertson made a verbal report on the progress of the Southern California Museum. Work has already actively begun on this, and the Club has been asked to furnish data for the cornerstone. In compliance with a motion made by Willett, seconded by Osburn, and duly carried, the Chairman appointed Messrs. Law, Willett and Lelande, a committee to prepare proper data and see that it is placed in the cornerstone. On motion by Mr. Willett, seconded by Mr. Shepardson, and duly carried, the Southern Division approved the action of the Northern Division in endorsing the proposal of Mr. W. L. Dawson; and also pledged its moral support and co-operation in the task of preparing a work on the "Birds of California." It also approved the decision that Mr. Dawson be permitted to associate the name of the Cooper Club with his own in the title page of the work. On motion by Mr. Lelande, seconded by Mr. Chambers, and duly carried, the following resolution was unanimously adopted. Resolved—That the Southern Division of the Cooper Ornithological Club does hereby recommend Mr. Evan Davis, of Orange County, for an appointment as a member of the State Fish and Game Commission.

Mr. A. B. Howell exhibited a very fine series of bird photos covering a period spent on the Coronado Islands during 1910. A Paper entitled "Nesting Notes on the American Eared Grebe and Pied-billed Grebe" by Robert B. Rockwell, was read by Mr. Lelande and thoroughly enjoyed. Adjourned.—W. LEE CHAMBERS, *Secretary, pro tem*.

For Sale, Exchange and Want Column.—In this space members of the Cooper Club are allowed one notice of about 35 words in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. Notices must be written plainly, on one side only of a clean sheet of paper. For this department address W. LEE CHAMBERS, R. D. no. 1, Box 73 D, Los Angeles, Calif.

FOR SALE OR EXCHANGE.—The following fine sets: Audubon's Ornithological Biography, 1831-39, 5 vols. complete; Audubon's Synopsis of Birds of America, 1839; Nuttall's Manual, orig. ed., 1832-34, 2 vols. complete. *Wanted:* The Auk, vols. 1, 2, 3 and 6; The Osprey, new series, vol. 1; Swainson and Richardson's Fauna Boreali-Americana.—CHARLES R. KEYES, Mt. Vernon, Iowa.

WANTED.—Wheelock's "Birds of California"; Goss's "Birds of Kansas"; any or all numbers of the "Iowa Ornithologist."—J. L. SLOANAKER, Raisin, Fresno Co., Cal.

WANTED.—Nidologist, Vol. I, No. 2.—H. H. JOHNSON, Pittsfield, Me.

WANTED.—Nidologist: Vol. I, all except no. 9; Vol. III, no. 12; Osprey: Vol. I, nos. 2, 4, 6, 8, Vol. IV, no. 3, Vol. V, all nos.; Condor: Vol. I, no. 2; Auk: Vol. IX, no. 3, and other whole volumes. Cash or sets offered.—DR. T. W. RICHARDS, U. S. NAVY, 1911 N Street, N. W., Washington, D. C.

WANTED.—First-class sets, any variety, of Pine Grosbeak, Hermit, Mangrove, Orange-crowned, Tennessee, Sennett, and Connecticut Warblers; Salt Marsh Yellow-Throat and Belding Yellow-Throat; Oregon, Alaska, Gray, Texas and Blue-eared Jay, Spotted Owl.—E. ARNOLD, Freight Claim Agent, Grand Trunk Ry., Montreal, Canada.

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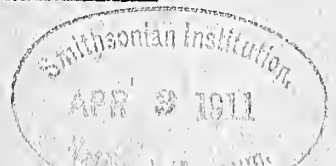
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COOPER ORNITHOLOGICAL CLUB



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Fig. 18. AN ANCESTRAL EAGLE'S NEST ON THE LLANO WALL.

THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XIII

March-April, 1911

Number 2

THE OASIS OF THE LLANO

By FLORENCE MERRIAM BAILEY

WITH ONE PHOTO

OUR first camp at the foot of the Llano Estacado after a long cold day's drive over the treeless plains was in a warm, sheltered, well-wooded amphitheater at the foot of one of the northward projections of the Llano wall known as Mesa Pajarito, whose bluff rose four hundred feet above the plain. The mesa was appropriately named as far as its amphitheater went, for, protected from the wind and warmed by the afternoon sunshine, it was ringing with the songs of "*pajaritos*", little birds—Mockingbirds and a large supporting chorus.

The trees of the amphitheater, dark solid junipers lightened by delicate green feathery mesquites, were spaced with yucca and tree cactus, one grove of which reached above our heads, and which gave the characteristic arid land touch. We looked at the rich vegetation about us with keen interest, for, lying between the bare plains over which we had come and the bare Staked Plains above us, it seemed a veritable oasis. In matter of fact it was a section of a band of vegetation that encircles part of the Llano separating the two sets of plains, a band of vegetation which owes its existence to the Llano wall. As Dr. Bigelow in his Pacific Railroad report on the botany of the region wrote—"It is to be remarked that the wind blows with tremendous force over these immense denuded plains, and this, we have reason to believe, is one great cause of the destitution of timber in this region. In confirmation of this opinion, is the fact that wherever the least shelter by a bluff or rock is afforded, the modest cedar will rear its head, thankful as it were for this partial protection." The Llano wall besides cutting off the wind that has made fires sweep over the plains affords partial shade, broken soil, and more moisture from both snow and rain, thus enabling the ground at its foot to support heavier vegetation and consequently more animal life than the plains.

In the same way a canyon cutting through an arid cactus desert may have its

bed filled with rich deciduous trees and shrubs in which live many birds and mammals unknown to the desert above. This had been the case at one of our earlier camps where cactuses so filled the spaces between junipers that it was hard to escape them, branches of *Opuntia arborescens* pricking you admonishingly on the shoulder as you passed, low white-spined prickly pear sticking needles in your boots, *engelmanni* lending spines for your leggins, and *Mammularias* adding many a stinging touch; while cactus flowers in red, yellow, and magenta offered their glowing tribute along the way. In the canyon that cut through this cactus desert were willows, fresh green cottonwoods, trees draped in woodbine and grapevine—the grapevine adding a fragrant breath—a patch of cat-tails, clusters of brilliant yellow flowers, delicate white cliff roses and—a pair of eastern Phoebe nesting in a niche over one of the numerous water pools!

At Mesa Pajarito at the time of our visit—June 1903—Ash-throated Flycatchers, Woodhouse Jays, Vireos, and Bush-tits, characteristic birds of the juniper country or Upper Sonoran zone, were abundant; while a Roadrunner, being kept in countenance by some mesquite of the Lower Sonoran zone was seen near the top of the cliff. A young family of the delightful Desert Sparrows had just left their nest in a juniper and were being fed by their handsome black-throated parents near by, while an irrepressible brood of Rock Wrens after several alarming encounters with the strangers were led out of sight down a cut bank by their sagacious mother. Blue Crows, the young with only half-grown tails, passing in blue waves through camp were enough to give life and color to the grayest day. Confiding Mourning Doves walked about near the tents, the male showing his beautiful plum-like bloom to great advantage when he puffed out his throat in cooing to his demure brown mate.

A variety of other birds swelled the list, but most in evidence in the amphitheater were the Mockingbirds. There must have been half a dozen pairs, one of which was feeding young in a nest in a cactus close to camp, a nest well protected by its own thorny sticks as well as its thorny supporting branches. A Mocker who sang vociferously until silenced by the third day of rain, was the best mimic I ever heard—he kept me running out of the tent to see familiar birds who were not there. At dark when stentorian Mockingbirds stopped singing, doubtless because they couldn't keep awake any longer, the Poorwills with quiet voices well suited to the evening stillness began to call from the shadows, *poor-will'-low*, *poor-will'-low*; and when the darkness of night had silenced them, their places were taken by the Great Horned Owls which in deep-voiced, sonorous tones hooted solemnly to each other from the caverns of the rocky wall. The next day to our surprise we heard the Poor-will, the bird of dusk and dawn, calling at intervals while the sun was shining; but it was probably waked at these unseemly hours by the unaccustomed jangle of the horse bell, for after that it was heard only at its own proper concert hours.

The four hundred foot cliffs of the Llano attracted Cliff Swallows, Sparrow Hawks, Ravens, Eagles, Horned Owls, and Buzzards. Sparrow Hawks were seen from camp feeding young out of the nest, and in climbing the cliff Mr. Bailey found an old three-story eagle's nest, and also a raven's nest from which the young had recently flown. The eagle's nest, on a ledge of the sandstone cliff facing camp, was a massive structure three or four feet high, at least three nests being built one above the other. The ground beneath it told an interesting story. Numerous ejected pellets of rabbit fur, and a variety of small bones strewed the earth. The bones—jaws, skulls, and thigh bones—after critical examination were pronounced those of prairie dog, gopher, jack rabbit and cottontail—rabbit predominating.

Remains of a crawfish and a land turtle were probably attributable to a coon, while skunk tracks added their testimony as to the popularity of this eagle market. Bits of white bone had been carried away by aesthetic wood rats to decorate their nests in the junipers. The raven's nest was evidently an ancestral home, as bushels of old sticks had been thrown down on the ground. It might well have been used for generations, for it was quite inaccessible, about half way up a fifty-foot sandstone wall in a niche under a projecting rock. The old pair, Mr. Bailey reported "croaking and diving and gyrating along the face of the cliff, flying up to the top of the cliff, tilting up; closing their wings, and diving deep into the valley; then up again; then off across the face of the cliff." In another place where two Ravens were seen sailing across the face of the wall, a third, when closely watched proved only a projected shadow—like many of the supposedly dark realities of life.

The Buzzards seen flying around the wall were traced to the old carcass of a sheep. A faint trail led away from the carcass, and a coyote surprised there by the hunters burst out howling so loud that our camp man who was cutting tent pins dropped his saw and ran for his rifle. On investigation the cause of the coyote's excited outburst was explained by the discovery of a den containing young under the rocks not far away.

From Mesa Pajarito we followed along the north wall of the Llano till we came to a headland bluff rising 1000 feet from the plain, shown by the contour map to be the highest point of the Staked Plains. On camping at its foot we could hardly wait to explore the neighborhood, to see what new riches we should find in this green belt between the upper and lower brown plains; for the walls of the Llano were here six hundred feet higher than at the Pajarito amphitheater and promised a correspondingly richer flora and fauna at their base. Our first ornithological discovery had been made when driving into camp, for we were greeted by the loud notes of the Quaker-like Gray Vireo, a bird particularly interesting to find because of its restricted range in the southwest; and afterwards its cheery though jerky song was not only constantly in our ears in camp but often heard among the junipers. Another bird we were delighted to find at our door was the Scott Oriole, that rare musician with exquisite plumage of lemon and black, consistently following out a narrow strip of its native Lower Sonoran mesquite though surrounded by Upper Sonoran junipers and nut pines. A pair of the birds was doubtless nesting near us, but they were so shy they would fly on and on through the junipers when followed. The song of the male, an immature male, suggested the meadowlark's song. His favorite phrase from his rich repertoire heard from camp throughout the day was so curiously accented on the second and fifth syllables that as we went and came through the junipers with it ringing in our ears it phrased itself appropriately—a ju'-ni-per val'-ley, a ju'-ni-per val'-ley, a ju'-ni-per val'-ley.

The first night our list of neighborhood discoveries was swelled by a young family of Baird Wrens just being put to roost—how joyfully the head of the family did sing!—and a Mockingbird with a nest and three handsome blue eggs, a persistent mocker who, as my notes complain, "kept at something morning, noon, and night." Not to be forgotten were the Nighthawks, though they had been booming in the day time about our camps during the entire month since we entered the field.

The next day on a horseback trip when passing through a narrow juniper gulch we found a Black-headed Grosbeak sitting on her nest in a hackberry, an Arkansas Kingbird building in a pocket of a charred juniper stump, and best of all a Gray Vireo brooding her eggs so faithfully that she let me stroke her head on the nest—nothing remarkable for a vireo to be sure, but a heart-warming experience

nevertheless. Besides these there were the Mourning Dove, Say Phoebe, Ash-throated Flycatcher, Richardson Pewee, Woodhouse Jay, the Desert Sparrow, Gray Vireo, Gnatcatcher, and House Finch, one of whose nests was found in a tree cactus. Later, in climbing the thousand foot bluff we found a family of Mexican Falcons near the top.

With the additions these birds made to our Pajarito list and a few others noted between camps there were about forty species. Considering the fact that they were confined to a narrow strip between broad plains on which the list of birds often consisted of two, sometimes of one species, the forty seemed a goodly number. And now, thinking back over towering cliffs enlivened by moving forms and housing ancestral homesteads and of gulches and amphitheaters below ringing with joyous bird songs, this brave little band of forty peopling the juniper belt between silent plains seems to make the real oasis of the Llano.

THE BLUE-THROATED HUMMINGBIRD

By FRANK C. WILLARD

WITH FOUR PHOTOS

AS I wander about among the canyons of the Huachuca Mountains, there are two places where I always listen for a "squeak-squeak-squeak" repeated every few minutes, the second note higher pitched than the first, and the third note lower than either of the other two. These two places are in deep narrow canyons. It was some time before I was able to locate the author of the squeaks. Finally, I located a large hummingbird, perched on a dead twig well up in a fir tree.



Fig. 19. GREENHOUSE IN WHICH NEST OF BLUE-THROATED HUMMINGBIRD WAS BUILT; LOWER TIP OF NEST MAY BE SEEN WITHIN, BETWEEN CENTRAL PAIR OF SLATS, AT TOP

I knew it was not the Rivoli Hummingbird (*Eugenes fulgens*), as its notes were well known to me and are very different. I suspected that it was the Blue-throated Hummingbird (*Coeligena clemenciae*) and one day made sure of it by having one perch close to me as I sat, motionless, on a stone. The dull blue throat (for it looks dull in a shadow) and general dark color identified it readily. A slight movement of mine frightened it. It flew away into the fir tree to its favorite twig, and began to "squeak". This was in 1897.

In July, 1899, I located a nest built in an old Black Phoebe's nest on a rock overhanging a shallow pool. Near here, in May, Geo. F. Breninger had taken a set from a nest built among some ferns growing on a vertical rock. My set consisted of one egg, incubation well along. I attempted to get a photograph of the bird on her nest, but on account of the dense shadow the exposure was not a success.

Although I made repeated efforts I failed to locate another nest until the season of 1910. I made my headquarters at Berner's ranch in Ramsay Canyon. He has a flower and fruit garden, with several small greenhouses for winter use. Hanging from a nail in the roof of one of these was the handle of a lard bucket, and built upon the lower crook was a many-storied hummer's nest, some four inches high. It contained one newly hatched young. The tell-tale "squeaks" of an unseen bird identified my find and by keeping out of sight, and quiet, I was able to get a good look at the female parent. Later I saw very frequently both parents feeding among the flowers and occasionally within arm's length of me. On May 22 I took a photograph of the young one in its nest and judge it was at least a week old at that time. On May 29, I again photographed it and the difference in the length of its bill and the feathers of its wings and tail was very noticeable. On this occasion the youngster fluttered from the nest several times as I was attempting to arrange the camera for the exposure. The next day I left for town and did not get back again until June 16. I at once investigated this nest and found it empty.

During the last few days of my previous visit, I had seen the female in a bunkhouse that had formerly been used as a greenhouse. A piece of baling wire was wound around a nail in a rafter and formed a sort of hook. When I found the young one gone, I went at once to this bunkhouse and found the female sitting on



Fig. 20. EGGS AND NEST OF BLUE-THROATED HUMMINGBIRD, BUILT ON BUCKET-BAIL, SUSPENDED FROM CEILING INSIDE OF GREENHOUSE

a completed nest. She flew as I entered the room. I secured a ladder and soon held the nest and two fresh eggs in my hand. Some children were occupying this room so I did not dare leave the nest for further notes. I put another wire up, however, to furnish another nesting site.

June 21, the nest where the young one had been seemed to be receiving additions, and the sides were somewhat built up, but I could not see the birds around. June 25 the nest contained one egg and the next morning there were two. A visitor told me that it was liable to be taken by some small boys who were there, so again I was afraid to leave it for observation and collected the nest and set, first taking a picture of it, showing the eggs. The parent birds seem to be very shy for hummingbirds, particularly around the nest. Unless I was entirely hidden, neither

one would come near, though I could hear the tell-tale squeak first from one point and then from another of the nearby trees and bushes.

There is a small stream which flows through the ranch, and it is crossed by a small foot bridge overhung by a willow and a sycamore. This was a favorite hunting ground of the Blue-throats. About the last bird note heard at night and the first in the morning was the squeak of this hummer coming from this point in the garden.

The long diameter of the eggs is about the same as in those of the Rivoli but the short diameter is a little greater. This may be an individual characteristic of the pair whose nests I took. However, the birds themselves are stouter bodied than the Rivoli and it is natural to expect their eggs to be larger. The nest is made largely of oak blossom hulls, and stems of the same,

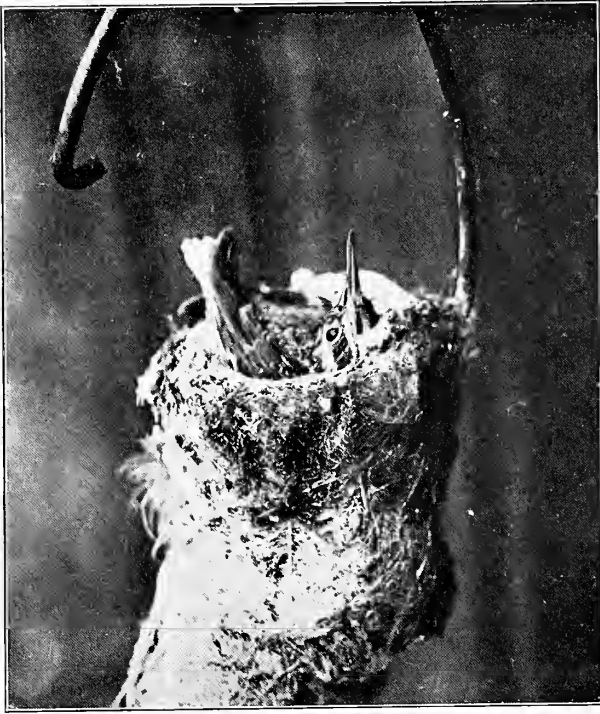


Fig. 21. YOUNG OF BLUE-THROATED HUMMINGBIRD,
MAY 29, 1910

with a small amount of plant down intermixed. The whole is well tied together with cobwebs. The nest cavity is shallow and the edges are not incurved, differing in both these respects from the nests of the other hummingbirds with which I am familiar.

The place where I hear the other pair is near no house and I am anxious to locate the nest and learn what the natural nesting site is, man not furnishing a convenient substitute. Many hours of patient watching have failed to reveal it yet, but I live in hopes.



Fig. 22. YOUNG OF BLUE-THROATED HUMMINGBIRD ABOUT TO LEAVE NEST

ODDS AND ENDS

By JOSEPH MAILLIARD

Aix sponsa. Wood Duck. Coming across a small band of Wood Ducks in the fall of 1910, near the junction of the Tuolumne and San Joaquin rivers, reminded me of the fact that it had been many a long day since I had seen one of these birds alive, and that while they used to be plentiful in Marin and Sonoma counties back in the seventies and eighties they are extremely scarce in those regions nowadays. As late as twenty-five years ago it was no uncommon thing to see Wood Ducks scattered in small groups along such a stream as the "Paper Mill" or "Lagunitas" creek in Marin county, or anywhere along the Santa Rosa Laguna in Sonoma county, even where quite a number of people lived in the vicinity and there was a good deal of travel along the streams. Often they were found in small tributaries and diminutive ponds along these waterways. But now, with the country rapidly filling up, and more shooting going on, none are to be met with in these their old and favorite haunts. So it was a great surprise, as well as a pleasure, to come across them again in Stanislaus county this year, the greater surprise for the reason that none were seen in the two previous years during which I have had opportunity to make observations there. This last fall (1910) several were seen on different occasions, one was taken, and one flock of fourteen, mostly males, was flushed from a small laguna among the willow thickets.

Herodias egretta. Egret. In view of the fact that this species was at one time nearly extinct in this state it is encouraging to the advocates of bird protection to note that these egrets are increasing in numbers. There are quite a number to be seen nowadays in the fall and winter in the lowlands and along the sloughs of the San Joaquin River. I have, in fact, seen as many as seven or eight at a time near the junction of the San Joaquin and Tuolumne rivers, and a group of two or three together is no uncommon sight in that locality. The sight of even one of these birds was a rare event for a number of years in most parts of the state, and is so yet in many places where they used to be quite common. In Marin county, for instance, one or two could be found in every small marsh thirty years ago, whereas I have not seen one there for many a long year. As this species has not been definitely recorded from Marin county it might be of interest to state that there is one in our collection shot by myself in January, 1880, as it was flying over our buggy in the outskirts of San Rafael. I was then returning with C. A. Allen from a trip to Pt. San Pedro (Marin County) after a vain search for the Barrow Golden-eye (*Clangula islandica*), some of which he had taken there shortly before. The spot where this egret was shot is now near the heart of the town, and on one of the principal streets.

Egretta candidissima. Snowy Egret. While the Egret (*Herodias egretta*), as noted above, seems to be increasing in numbers, it has not been my fortune to come across any Snowy Egrets for a very long time. In fact the only one in our collection is a male from the vicinity of Sacramento, California, taken in June, 1880. However, the chances are that this species has gained also by the efforts to restrict the slaughter, and probably is to be found in places most suited to it.

Grus canadensis. Little Brown Crane. There are two specimens of the Little Brown Crane in our collection which came to us from Mr. H. B. Kaeding, when we took over his collection on his departure for the Orient some years since. These specimens were purchased in the flesh by him in the San Francisco market, being among several *Grus mexicana* which he had bought at various times in the winter season, and were supposedly shot in the vicinity of Los Banos, California. At any rate they came from somewhere along the San Joaquin River in that part of the state. As records of this species from California seem to be rather meager and unreliable it may be worth while not only to mention these two specimens, but to give their measurements:

♂, Coll. J. & J. W. Mailliard, no. x3226: wing 522.1 (mm.), tail 174.6, culmen from base 101.6, depth of bill at base 24.8, tarsus 199.4, middle toe 72.6, bare portion of tibia 72.6.

♀, Coll. J. & J. W. M., no. x3227: wing 519.2, tail 162.3, culmen from base 93.9, depth of bill at base 22.6, tarsus 211.0, middle toe 79.7, bare portion of tibia 73.1.

As the distinctive difference between these two species is principally a matter of length of the culmen, tarsus and bare portion of the tibia, a comparison of these particular measurements as above given, with the minimum of each as laid down for *G. mexicana* will show that these two individuals are well below the prescribed limitations of *G. mexicana*, and that there can be no doubt as to their identity.

Minimum measurements of *G. mexicana*, according to Ridgway, are: Culmen from base 130.8 mm., tarsus 251.4, bare portion of tibia 116.8.

Piranga ludoviciana. Western Tanager. We have two records of the Western Tanager breeding at low elevations in Sonoma county, California, which may be of sufficient interest to mention here. We have, that is to say, two records, and one nest, but no eggs. A fall of twenty-five to thirty feet proved so damaging to the

shells that they were not worth while preserving. The first nest was found by John W. Mailliard near Mark West Springs, when on a collecting trip through Sonoma county with C. A. Allen. It was in a Douglas spruce, a way out on a horizontal limb. The attempt was made to tie up the limb and saw it off, but the outer end was so heavy that it dropped and spilled out the eggs—a drop of some twenty-five feet. The eggs were three in number and incubation advanced, and the date was May 19, 1884.

The second nest was found by my son and me, at Seaview, near old Fort Ross, on May 17, 1908, when we were on our way to the nest of the Monterey Hermit Thrush (*Hylocichla g. slevini*) mentioned in THE CONDOR, vol. X, p. 134, and was also in a Douglas spruce, about thirty feet from the ground, and twelve or fifteen feet out from the trunk. This limb was straight across a ranch wagon road running through the forest, used often enough to be worth keeping in repair. We endeavored to sling the limb to the one above it, so as to be able to cut it off at the butt and haul it in far enough to reach the nest. But we had nothing with us but a strap or two, suspenders, etc., and the limb was so crooked and badly balanced that it turned over in spite of us, and spilled out the eggs. These were three in number and fresh. The parents were secured for the record. The nest, as was the one mentioned above, was composed principally of "Spanish moss", with a slight exterior framework of fine spruce twigs, mostly forked, among which were mingled a few dry rootlets, and lined with horsehair and some fine rootlets. The main portion of the nest—not considering the loose, surrounding framework of twigs, the ends of which projected out very irregularly to a considerable distance, and confining the limits to the more solid structure of "Spanish moss"—had an outside diameter of 127 mm. and an inside diameter of 73 mm., the depths being respectively 47.5 and 31.6. This shows the nest to be rather a shallow structure, but the main portion quite compact and well built.

Mr. P. M. Silloway, describing a nest of the Western Tanager at Flathead Lake, Montana, says: "It was made of coarse *forky* twigs as an outer framework, * * *. When removed from its site the loose twigs in the outer part of the nest fell away like that part of a grosbeak's nest." And so it was, as far as the exterior framework was concerned, with the nests taken in Sonoma county. But the Montana nest was evidently made, in the main part, of different material. These two Sonoma county nests seem to be very different from that taken in the Sierras and described by C. Barlow in *The Osprey*, Vol. I, p. 6. This difference shows that the Western Tanager is more adaptive to surroundings in the matter of elevation above sea level, and materials for nest construction, than is popularly supposed. Neither of our two records were more than a few hundred feet above sea level, and the one taken at Seaview was within three miles of the Pacific Ocean.

DOVES ON THE PIMA RESERVATION

By M. FRENCH GILMAN

THE doves in this part of Arizona form a most interesting group and even the more luke-warm bird-lovers would be delighted to study them. Their prominence both to eye and ear calls attention to them and though so numerous and common, their absence would leave a big void. The Mourning Dove, *Zenaidura m. carolinensis*, is present in greater or less numbers the entire year, breed-

ing abundantly in suitable places throughout the entire district. The Indian name is Haw'-he and my informant told me in connection with the matter what he considered quite a joke. He was working for a man who asked him the Indian name for the dove and was told correctly. The next day they saw the bird again, and the Indian, wishing to see how well the term was remembered, asked for the name. The white man at once responded "Hé-haw." The Indian laughed heartily as he told the story, and all that day whenever we saw a dove he would say Hé-haw and chuckle.

During November and December they are fewest in number, but in January and February many more arrive, and in the breeding months they are everywhere. Nesting begins the first part of April, my first find being dated April 12, the nest containing eggs partly incubated. Many nests were noted during April, May, June and July, with no attempt made to keep a correct census of them. August 13 was the latest date, and on that day two nests with eggs were seen. Nests were abundant from April 15 till July 15 and in all sorts of situations. One was on the ground under a cotton plant, and others in trees as high as twenty feet from the ground. The average height was seven and a half feet, and extremes were three feet and twenty feet. Mesquite trees being more numerous contained the most nests, though many were found in other growth, such as *Sarcobatus* or greasewood, Cholla cactus, willow, *Baccharis*, *Zizyphus* or wild jujube, *Atriplex* or salt bush, *Prosopis* or screw-bean, ironwood, cottonwood, and pear tree. A favorite site was on top of a mesquite stump where the young shoots formed a shade and concealment. The brooding bird as a rule was quite tame on the nest, and generally went through the pretence of being wounded when scared from her home. After the young are grown, small flocks are seen on cultivated fields all fall and winter. The Indians never hunt them and they are quite tame.

The White-winged Dove or Sonora Pigeon, *Mclopelia asiatica*, is migratory, arriving here about the 20th of April. Their coming is coincident with the ripening of the berries of the wild jujube, *Zizyphus lycioides*, upon which they feed greedily as long as the fruit lasts, consuming both ripe and green. The Pima term for the bird is Aw-kaw'-kwe. They come in such great numbers that the wheat fields suffer and the loss is considerable. The Indians try to frighten them away from the fields but do not hunt them. Probably they figure that ammunition would count up more on the debit side than would the wheat destroyed. At present there is no closed season and the beautiful birds may be shot whenever present. There was an attempt recently made to have them protected, but such a howl went up from the ranchers that nothing was done. It seems a pity to hunt them during the breeding season, but if we were raising wheat we might look upon the practice with more philosophy. The white color pattern shown when the bird is in flight is quite striking. When perched, the white on the wings is rather inconspicuous, but in motion it shows as two broad crescents, and the white crescent-shaped bar across the tail, generally spread a little in flying, adds greatly in producing the striking effect.

From the day of their arrival in spring they set up a continual call which may be roughly described as Co-co'-o-cok'-co-co'-o.

This call is heard in all directions from morning till night and in such volume that it becomes a sort of continuous bass hum, a background or sounding board for all the other bird songs and calls. It lacks the plaintive tone of the Mourning Dove call, and to most people becomes a dreary monotonous droning which wears on their nerves. Be that as it may, the sight and sound of the bird is part and parcel of the mesquite desert and would be sorely missed. The gunner, in these

birds, has a good test of his skill, as they fly very rapidly with seemingly little effort, and the rate of speed is hard to estimate. They will carry off a large load of shot too, and all things considered are a fine game bird. As soon as the young are grown both they and the parents congregate in large flocks and fly from feeding ground to watering place, thus affording a good chance at wing shooting. One evening in twenty minutes I counted over 700 fly past a bridge over a small irrigating canal.

In addition to the wheat, these doves feed on other grains and much weed seed. They are very fond of sorghum seed, and large flocks gather on a field of this plant. The giant cactus (*Cereus giganteus*) furnishes them a large amount of food also. They may be seen on top of the great columns as soon as the first blossoms appear, thrusting their bills into the trumpet-shaped flowers, but whether for insects, pollen, or nectar was not learned. As soon as the fruit ripens, however, there is no doubt as to what they are seeking. Their actions are a sufficient index even without the tell-tale red stain around their mouths. They frequent the cactus groves as long as any fruit is left, flying a long distance to reach this delicacy.

Besides the danger from gunner, the Cooper Hawk is a menace, feeding often on the fat pigeon. I have seen a Marsh Hawk after a White-wing with a broken wing but do not think any but wounded birds are ever attacked by this species.

Along in August the big flocks begin to grow less, the birds probably scattering out and seeking feeding grounds more distant from the breeding grounds. Toward the first of September they begin to thin out in earnest and by the 15th of the month very few are seen. Individuals may linger a little longer, as in 1909 I saw one as late as October 12, and in 1910 the last seen was on September 25. A few lingered on a sorghum field up till September 10 of this year but were not seen any later.

In April, soon after the birds arrive, I have shot some that looked like young or immature birds. Possibly some individuals may raise a brood before leaving their winter home or these may have been very late hatched squabs of the previous summer. I am inclined to think they were hatched earlier in the season in their southern resort before the northern movement began, as there always seems to be a lot of doves sitting around or flying in small squads who seem to have no family cares. These may be the parents who have already performed their duty.

Nesting begins soon after arrival in the spring and as only a slight platform is built for a nest, not much time is lost in construction. The nest is practically the same as that of the Mourning Dove though perhaps a little larger, as the White-wing is some larger. They nest in a sort of scattered colony, and frequently two and three nests are seen in a large mesquite tree. In some favored groves about every third big tree has one or more nests. Much of the nesting is done in May and June, and in July they are congregated in large flocks. The earliest date I have recorded for eggs was May 10, and at that time a great many new nests were seen. In 1908 and 1909 most of the nesting seemed to be done in May and June, but in 1910 the season reached well into July, as in that month I found twenty-one nests containing eggs or young birds. Possibly nests may have been found in July of the other seasons had I been as assiduous in searching for them. I kept on the lookout during all three years but was particularly on the alert last July, as the previous August I had found a nest with eggs on the 2nd of that month, and I wished to specialize on the late nesting. This August nest contained eggs nearly hatched, and the bird brooding them looked like an immature one, a bird of the year, which possibly was the case.

Nests are always, as far as my observation goes, placed in trees or shrubs at

varying distances from the ground. The average height was ten feet and extremes ranged from four to twenty-five feet. The only nest as low as four feet was built in a mesquite tree and placed on top of an old Thrasher's nest. This may have been a shiftless bird; but I found several others using old Cactus Wren's nests as foundation, and one had made use of a deserted Verdin's home.

The eggs are a little larger than those of the Mourning Dove and lack the pearly luster, the shell looking much like that of the tame pigeon's egg. Two is the usual number in a nest, but July 10 I found a nest containing three partly incubated eggs.

In choice of nesting sites the bird shows a decided preference for mesquite, as about 70 per cent of nests noted were in that plant. About 20 per cent were in willows, and 3 per cent each in cottonwood, *Opuntia fulgida* or tree cholla, and *Prosopis odorata* or screw-bean. *Baccharis gluten* brought up the rear with 1 per cent. The dove is usually very wild on the nest, flying off whenever approached as close as twenty-five feet. Rarely is the broken-wing play made, though I have seen a few mild attempts at it, and occasionally one will allow an approach as close as fifteen feet to the nest before taking flight.

The Mexican Ground Dove, *Chaemepelia p. pallescens*, is a most interesting little fellow in spite of his rather formidable name. He might properly be called the "woo-woo bird," as his note is a single "woo" long drawn out and uttered at short intervals. The sound is very misleading, even to a greater extent than that of the Mourning Dove. The first time I heard it I started to cross a ten-acre field to search for the bird in some trees on the far side. I had gone but a few yards when the dove flew from a fruit tree about three rods away, where he had been the entire time.

These little doves are not very gregarious in this locality, but that may be because they are present only during the breeding season. Three is the most I have seen in a group and that not often. Usually two are together, probably mates. They are rather quiet and the call is not heard often, though this may be on account of their few numbers in this locality. I have seen but seven nests during a residence of three years here, and have not seen very many of the doves. They do not appear to go far from cultivated fields, in fact I have never seen them out on the desert, as is the case with the two larger doves. They are most frequently seen near the river or along irrigating canals, and nest in such locations.

They are absent from this locality during the winter months, usually making their appearance about the middle of March. November 18 is the latest I have seen them but they are rarely seen as late as October 20.

In size they are about like the Inca Dove but may be distinguished in the field by darker coloration and short tail with black outside feathers instead of white. The flight is the same series of jerks as described by Mr. Beebe, who said they jerked themselves through the air. I have never tried to shoot one on the wing, and imagine it would be a serious undertaking if success followed. I have never heard the call given from the ground, but always from a tree or the top of a shrub. They are not very wild but their tameness does not approach the point of familiarity by any means.

The nesting season is late, as the earliest nest found was on July 7 and contained one half-grown young bird. This nest was in a pear tree and placed only two and a half feet from the ground. On July 16, a nest with two young, quarter-grown; July 17, nest and two half incubated eggs; September 3, nest with half-grown young; September 11, young just hatched; September 25, nest with two eggs, advanced incubation; October 8, nest with two nearly fresh eggs. This last

nest I wanted to collect, but the date was so late that I decided to watch and see if the young could hatch and mature. They hatched October 16, but two days later I found both young cold and dead in the nest. Nests ranged from two and a half to twenty-five feet from the ground, with an average of ten feet. In regard to location, two were in cottonwoods, two in pear trees, one in a willow and two in the shrub *Baccharis*.

The nests are fairly well made for doves and are composed mostly of rootlets and small twigs. One nest rather more pretentious than usual was made of rootlets, grass stems and blades, leaf stems with veins attached, small twigs, horse hair and a few feathers. It was compact and fairly well made, with a decided cup in the center measuring nearly an inch deep, and two inches across from rim to rim. One was an old nest re-vamped, and another was merely a superstructure over an old Abert Towhee's nest. The very late date before mentioned was probably the second brood, as the nest was an old one re-lined, possibly a last year's nest, but more likely an earlier nest of the same year.

These doves are rather wild when on the nest and will not allow any familiarity. They rarely show any tendency to use the broken-wing tactics, though one did and made a most realistic performance of it. She fell from the nest when I was about eight feet distant and lay with quivering and beating wings. As I stepped closer she made ineffectual attempts to fly and fluttered along the ground at my feet just out of reach. She kept this up for about fifty yards before taking to flight. I then went on about my business after ascertaining that the nest contained two newly hatched young. Coming back an hour later, I scared her off the nest again and she repeated the performance but in a rather half-hearted way as though she did it from a sense of duty and rather doubted the efficacy of it.

The vivacious little Inca Dove, *Scardafella inca*, is the cream of the dove family and is in the public eye or ear most of the time. Whether sitting on a barbed wire fence or a clothes line, with long tail hanging down perfectly plumb, or marching around in a combative manner with tail erect at right angles to the body, or rushing around busily and hurriedly, not to say greedily, feeding with the chickens in the back yard, it shows a decided individuality and arouses interest and affection. If I could transport to my California home the Bendire Thrashers to sing to me and the Inca Doves to amuse me I would surely do it.

I have never seen them far from dwellings or barns, and even in nesting they show a decided preference for human company. They feed in yards with poultry, perch on back-yard fences, and seem as much part of the establishment as the wood-pile. They are rather dainty in their drinking, rarely using the chicken's drinking vessel, but perching on the hydrant and catching the drops of water as they leak from the pipe. To do this they nearly have to stand on their heads but that does not bother them at all. They eat wheat and other small grains but draw the line at corn, it probably being too large for them to swallow. At our house we always include rations for the Incas when ordering wheat for the poultry.

These little doves are with us the year through and their hard metallic little coo can be heard every month in the year, though most in evidence during the breeding season. As I write this I can hear the "coo-coo" which gives them their Pima name of Coo-coo. The call is much in evidence also during the heat of July and August, at which trying time people with nerves complain of the constant noise they make, which begins early in the morning and ends late in the evening. There is an insistent, persevering quality about the calling that is quite impressive, and when a lot of them keep at it some people sit up and take notice. They are

numerous too, as I have counted more than twenty feeding with about a dozen chickens in a small yard.

The Inca Dove could never have inspired the term "dove of peace", as they are pugnacious to a fault and fight like little fiends. Two of them will face each other with one wing on guard, held straight above the body; then close in and mix it, buffeting with wings till the sound of the blows is audible at a distance of fifty yards. The bill is also used with bloody results about the head. I have been told that one will sometimes kill the other but never saw such an extreme case. When arranging for a fight the combatants utter a sort of growl, if it may be so described: a very guttural, anger-expressing sound. In animated talk, gossip perhaps, they excitedly utter sounds something like "cut-cut-ca-doo-ca-doo". In all, quite a vocabulary is at their command. In motion they are quick and lively, and have the same jerky flight as do the Ground Doves.

The nests of these doves are nearly always placed near a dwelling or a barn. I have never seen a nest more than a hundred yards from a building of some kind, and many of them are as close as they can find a tree in which to build. A row of umbrella trees close to a dwelling has for three years been a favorite place for nests, and also a row of cottonwood trees along the front yard. These two kinds of trees are most frequently used, probably on account of their nearness to houses. Mesquite trees and fruit trees are also drawn on for homesteads. The nest is a little more elaborate than that of the two large doves and shows more of a depression or cup in the center. Rootlets, twigs, grass and leaf stems are materials used in the construction. The birds are generally quite tame on the nest, rarely flying off till the intruder comes closer than arm's length. I have placed my hand as close as ten inches to a brooding bird, but have never quite been able to pet one on the nest. They are so accustomed to human presence that the broken-wing subterfuge is rarely resorted to. The average distance from the ground, of a number of nests was twelve feet and they ranged from seven to twenty feet.

Fighting and cooing begins about the first of February, but the earliest nesting date I have recorded was April 11, when fresh eggs were found. The latest date was September 25, when a nest containing eggs slightly incubated was found. At least two, and possibly three broods are raised during the year. The past season I noted four cases where two broods were raised in the same nest, and two cases where a last year's nest was re-lined and used. Two nests found were built on top of old Cactus Wrens' dwellings.

Though so tame and accustomed to human presence, when caught the doves are violent in their attempts to escape. I trapped two at different times to have a friend take their photograph. I placed them in a cage to await the coming of the camera man but they used the same jerky motions to escape that they do in flying, and went at it with the same vim that they do in fighting. They were fast injuring their heads and I released them after a few minutes.

NOTES ON THE NESTING OF THE FORSTER AND BLACK TERNS IN
COLORADO

By ROBERT B. ROCKWELL

WITH SEVEN PHOTOS

FORSTER TERN

THE most beautiful and graceful bird with which our studies of bird life in the Barr Lake region brought us in contact, was the Forster Tern (*Sterna forsteri*). Their clear pearl-gray backs, snowy breasts, black crowns and brilliant orange feet and bills, coupled with the slender wings, deeply forked tail,



Fig. 23. FOUR "FLOATING" NESTS OF THE FORSTER TERN IN THE BARR LAKE REGION
OF COLORADO

and graceful easy flight, all set off by a back-ground of deep-blue sky made a never-to-be-forgotten picture. Furthermore the striking contrast between their charming manners when unmolested and their screaming frenzy when excited, made them especially interesting examples of bird temperament. Their peculiar modes of nesting, and the many problems arising from their erratic habits lent further interest to our field work among them; and on the whole these charming birds furnished us with some of our most delightful days afield.*

That these birds nested in Colorado was recognized as early as 1873 by Ridgway (Bull. Essex Institute V, Nov. 1873, 174) who stated that "a few breed in the state, but most of them are merely migrants," and Prof. W. W. Cooke in his "Birds of Colorado" (March 1897) classes them as "Summer Resident, rare." Both of these statements were no doubt true at the time they were written, which was before the day of extensive irrigation projects in Colorado. But through the

* All of the notes on which this paper is based were taken in company with Mr. L. J. Hersey.

construction of numerous large storage reservoirs, with the consequent seepage and marsh land, suitable breeding grounds have increased in number many fold; and in the case of the Barr Lake region at least, these birds are now common summer residents and breeders, and so far as my own observations go I should say that a fair proportion of migrants make this the terminus of their northward migration.

The first appearance of the terns in the spring was about May first; our earliest record was April 27, 1907, on which date a total of fifteen birds was noted, at different points along the Barr chain of lakes. We did not note any extensive migration of these birds immediately following this date, and in fact we did not see any migrating flocks of terns which we did not have good reason to believe were a part of the local breeding colony. However, northward moving flocks might easily have passed through between our weekly visits to the lakes, or during the night.

By May 10, or a few days later, the full quota of breeding birds had apparently arrived, and nest building was begun within a few days. May 11, 1907, the nesting sites had apparently been selected, as the birds made a great commotion when we visited the spot, and the first egg was found May 17.



Fig. 24. THE INJURED FORSTER TERN AND NEST

The nesting site was a large musk-rat "house", standing in the dense cat-tail swamp surrounding a small rush-bound lake. The house which stood in about two feet of water, projected about two feet above the water, and the eggs were laid in a slight cavity among the dry cat-tail stalks composing the house. These nests corresponded exactly in location and construction with those we had examined the preceding year. On this date (June 9, 1906) we examined fifteen nests, all located on musk-rat houses, and containing eggs exhibiting all stages of incubation. The fifteen nests contained one set of six, two sets of five, nine sets of three, and one nest a single egg.

On May 24, 1907, (a week after the first eggs were found) the breeding colony was in full swing, and we were surprised to find a number of nests, containing complete sets, which had been built by the birds upon floating masses of decaying cat-tails.

These structures were all made entirely of dead cat-tail stalks, and while they varied greatly in size and bulk, the general plan of construction was the same in all, being a compact pile of material of irregular outline, apparently floating on the

surface of the water (although in reality the nests were supported by masses of dead cat-tails beneath the surface of the water) and were very conspicuous owing to the lack of concealing vegetation. The eggs were deposited in the center of the pile in a neat depression, which was lined with small bits of the same material. The bottom of the cavity was, in every instance, well above the surface of the water (usually from two to six inches) and the nest cavities were entirely free from moisture. Most of these nests were built in comparatively open water almost waist deep, and about thirty yards from shore.

On the date mentioned (May 24) fifteen nests were examined, about a third of which were constructed by the birds as described, while the remaining two-thirds were the usual depressions, in musk-rat houses. The majority of these nests contained three eggs, but a few of them held only one and two, and one nest contained five.



Fig. 25. CLOSE VIEW OF FORSTER TERN'S NEST SHOWING DETAIL OF NEST CONSTRUCTION; NOTE THE TWO COLOR TYPES OF EGGS, THE TWO IN THE FOREGROUND BEING OF THE DARK BROWN TYPE AND THE THREE IN BACKGROUND OF LIGHTER GROUND-COLOR

This "set" together with all the other sets of five and six examined by us contained eggs of two very distinct types of coloration, one type having a decidedly greenish ground color with small spots and blotches of brown; the other type having a clear brownish or reddish brown ground color, with much larger spots and blotches of very dark brown; and it is altogether probable that the two color types were laid by different birds though in the same nest. In fact after careful observation we came to the conclusion that three eggs composed the maximum set (with rare exceptions) and that nests containing five and six eggs were the depositories of more than one bird. We are at a loss to account for this peculiar feature, as we did not see more than one bird around any one of the nests, and unoccupied nesting sites were abundant upon every hand.

On May 31 the colony contained many more nests than on the preceding week, and the birds were much tamer, several alighting on their nests within twenty yards of us. On June 8 all the nests contained incubated eggs, and on June 15 (1908) and June 9 (1909) we found two nests containing freshly hatched young. June 22 about half of the eggs had hatched, and on the 30th the water in the lake rose sufficiently to flood part of the nests, and many of the unhatched eggs were destroyed.

The young are beautiful little creatures, with a coat of silky down in soft grays and browns. While very young they somewhat resemble chicks, except for their long, sharp bills. They take to the water very readily and their knack of self-concealment is wonderful. With nests on every side of us and a hundred screaming parents circling above our heads, an hour's hard search rewarded us with only four young, although there must have been at least a hundred young ones hiding in the area covered by our search. The young as soon as they can "navigate" are very animated, and show an unusual fear of an intruder. They are also quite pugnacious, babies no larger than a warbler, pecking at an outstretched finger as viciously as a young hawk.



Fig. 26. NEWLY HATCHED YOUNG FORSTER TERNS

On July 6 many of the remaining nests still contained eggs, and one belated set was found July 21, on which date a great many young of the year were on the wing, and the breeding season of 1907 was practically at an end.

The tendency to colonize was apparent wherever we found terns nesting. The fifteen nests found in 1906 were located on musk-rat houses covering a tract of possibly twenty acres, and outside of this area we did not find a single nest. Several of the rat houses supported two nests, and one had three nests containing complete sets. The site of the colony in 1907 was about 300 yards from that of 1906 and covered a somewhat larger space, but the great bulk of the nests (probably seventy-five in all) were in an area of less than ten acres. Four of the floating nests mentioned above were close enough together to permit being photographed at one exposure. (See Fig. 23.)

The birds were at all times extremely demonstrative, rising in a cloud and coming to meet us with loud cries, while we were still a hundred yards or more distant from the nests. The din of their voices would increase as we approached the nests, and (after the young were hatched) when the nests were reached the birds would swoop down on us from quite a height on noiseless wings, and as they

swerved to barely miss our heads would give utterance to a shrill scream, which, coupled with a sudden booming of the wings, was altogether disconcerting. We often had the birds swoop so close to us that we could plainly feel the rush of air from their wings.

A few Black-crowned Night Herons were nesting among the terns, and one unfortunate youngster, unable to fly, who deserted his nest at our approach, took refuge on a tern's nest, where he was promptly attacked by half a dozen of the birds, and although twice as large as his assailants, was knocked down repeatedly, by well directed blows of the birds' wings, until he finally sought safety in the water.

We frequently saw the birds flying about with small fish in their bills, and on one occasion a minnow about two inches long was found in a nest containing young.

We found one unfortunate bird suspended by the neck, between two upright cat-tail stalks, just above the crotch, on which in its frantic efforts to liberate itself it had sawed its neck painfully. Our timely arrival probably saved it from a tragic death, as it was almost exhausted when we liberated it.

BLACK TERN

Also beautiful, and even more interesting to us than the Forster Terns because of the mysterious manner in which their breeding grounds eluded our search were the Black Terns (*Hydrochelidon n. surinamensis*). These dainty little fellows were fully as abundant in point of numbers as the Forster Terns, but although we saw numbers of



birds on every trip, careful and thorough searching failed to discover a nest during the breeding season of 1906, and that of 1907 was almost gone, before the coveted prize was discovered.

The birds appeared early in May (May 11, 1907, is my earliest record), and a week later were common. On May 17, 1907, one flock of sixty-five birds was seen (apparently migrants), and on May 17, 1908, two flocks of fully one hundred birds each were observed at the lakes. Soon after arriving the birds would become wonted to some certain pond or lake, and here amid their threatening screams and complaints we would splash through waist deep water by the hour, and plow through acres of soft black ooze, and decaying cat-tails, in a fruitless search for the nests.

Finally on July 5, 1907, after nearly all the rest of the birds had finished their nesting, and after we had about given up hope of finding the Black Terns' nests at all, the happy discovery was made, and I can do no better than to quote from my note-book of that date.

"There were only four Black Terns on the lake, as near as we could tell, and we worked the whole lake over, and then found the nest by coming back to the

first place where the terns had made a demonstration. All the time we were within seventy-five or eighty yards of the nest the birds circled about over us, sometimes poising almost motionless with rapidly beating wings, and continually uttering the characteristic shrill Black Tern cry. We did not see the birds alight a single time, so when we saw one fly up from among the rushes, not more than thirty feet from us, we went to the spot, and there was the nest. It was built on a dense carpet of dead cat-tails, blown over by the wind, forming a smooth, level and perfectly dry mat, upon which the nest and eggs, though small, showed conspicuously, even from a distance of fifteen or twenty feet. The nest proper was very similar to the nests of the Forster Tern though smaller; made entirely of short pieces of dead

cat-tail blades, rather slightly cupped but compactly built. It was located about ten feet from the low boggy shore, in a sparsely covered spot amongst dense cat-tail growth and over not more than six inches of water."

On May 30, 1908, we were more fortunate, finding two nests within a short distance of each other after a very brief search. The first nest was of the usual construction, and was built on a large circular wooden top of a duck blind, which was floating just at the edge of the cat-tails, in a small rush-bound pond. It contained two eggs and was rendered very conspicuous by its peculiar location. The water at this spot was almost waist deep. Not far away the second nest was found "built on a mass of dead floating cat-tails" and made entirely of dead brown cat-tail blades, fairly well cupped and containing three eggs. In both cases the birds were very noisy and demonstrative, and we quickly located their nests by their actions.



Fig. 28. NESTING SITE OF BLACK TERN; EGGS MAY BE SEEN IN LOWER CENTER OF PICTURE

Other work prevented us from observing these nests during the period of incubation and from studying the young, but the appearance and habits of the young birds would in all probability vary but little from those of the young Forster Terns with which we were somewhat familiar.

The most baffling question with which we were confronted was whether or not only a very small part of the summer residents nested. It hardly seems possible that only a few birds of the hundreds seen by us on nearly every trip were breeding, yet on the other hand, it is hard to believe that our careful search over all the most suitable ground, would fail to discover the nests if they were nesting in large numbers.

Our study of the terns, was simply one of many illustrations of the wonderful changes of bird distribution brought about by the magic touch of water on what was once a dry, arid prairie.



Fig. 29. CLOSER VIEW OF BLACK TERN'S NEST SHOWING DETAILS OF CONSTRUCTION

SUMMER BIRDS OF WILLOW CREEK VALLEY, MALHEUR COUNTY, OREGON

By MORTON E. PECK

DURING the past summer (1910), the writer spent several weeks, that is, from June 22 to July 25, at Brogan, Malheur County, Oregon. Brogan is as yet a town-site rather than a town, but it promises a considerable growth, as the result of the execution of an extensive irrigating project. It lies in the valley of Willow Creek, twenty-five miles northwest of the town of Vale, about fourteen miles from the Idaho line, one hundred and fifty from the southern boundary of the state, and a little less from the northern.

The study of birds not being the primary object of the visit, only a small amount of territory was covered, though this was looked over with considerable care. Some five miles of the valley of Willow Creek were gone over repeatedly, a trip of about eighteen miles was made up the canyon of the creek, two or three smaller tributary canyons were explored for several miles and visited on two or more occasions, and the sage-brush-covered hills were gone over for four or five miles in various directions from Brogan.

Willow Creek Valley proper begins about two miles above Brogan, where the

stream, which flows in a southeasterly direction, issues from a narrow canyon into a broad drainage basin, from one to several miles in width, with a flood-plain half a mile or more wide. It should be explained, however, that the entire creek is now taken up and held in reservoirs for irrigation. On the north side the land rises by a steep, continuous slope for a distance of several hundred to perhaps a thousand feet, but on the south a series of low hills leads gradually up from the flood-plain to the rim of the valley. Besides the main canyon two or three small tributary canyons enter the valley within the limits covered by our observations; only one of these, however, contains a permanent stream. This is known as Pole Creek, and is very small, in fact quite disappearing in places, where it sinks among the rocks and sand of its bed. The main canyon is from one to several hundred yards in width, with steep, often precipitous walls.

So far as the vegetation of the region is concerned, the flood-plain association of plants is of course sharply marked off from that of the upland or sage-brush section. The former consists largely of a tall rank grass (*Elymus condensatus*), known as rye-grass, together with other grasses, sedges, and rushes, and where the soil is strongly alkaline, of various halophytic species. Certain tall weeds, especially the common sunflower (*Helianthus annuus*) also abound. Along the immediate bank of the creek there is a more or less continuous belt of willow thickets, consisting mainly of shrubby species, commonly not much over fifteen feet in height, but frequently forming a very dense growth. At Brogan, however, there is a tract of some fifteen or twenty acres of what may be designated timber, consisting wholly of willow trees, some of which reach a height of thirty or forty feet and a diameter of twelve or fifteen inches. Among the trees is a dense tangled undergrowth of red osiers, rose bushes and other shrubs, with various rank weeds, especially thistles and nettles, forming all together an almost impenetrable jungle.

In the canyons are considerable thickets of willow, some shrubby birches (*Betula microphylla*), occasional small shad-berry trees (*Amelanchier cusickii*?), and also alders and chokecherries, and numerous clumps of cottonwood (*Populus angustifolia*), the trees sometimes sixteen inches in diameter. Excepting these narrow canyons and the flood-plain of Willow Creek, the whole area over which our observations extended is an almost uninterrupted waste of sage-brush and such other xerophytes as usually accompany it.

It is needless to say that the character of the vegetation constitutes the dominant factor in determining the avian life in each of the sections above indicated. In the flood-plain area birds were not, in general, remarkably plentiful; however, the bit of willow timber displayed an abundance of individuals and variety of species rarely seen surpassed in any section of equal extent. Some idea may be gained of the richness of this locality from an examination of the list which follows. The chief requirements, protection from enemies and from the elements, and an abundant food supply, were here to be met with as nowhere else for miles around. Insects appeared to be remarkably plentiful; one would scarcely find them more so in a tropical forest.

This lower portion of the valley has been in ranches for many years, and a considerable part of it is devoted to alfalfa raising. About the ranch houses are considerable orchards and shrubbery and tall Lombardy poplars, forming a favorite resort for a number of species, which were here found in great abundance. Furthermore, large numbers of Fringillidae were noted in the extensive patches of sunflowers, the seeds of which, when in season, probably formed their principal food. In Willow Creek Canyon birds were found in only moderate numbers, but in the little canyon of Pole Creek both species and individuals were abundant.

The avian life of the dry, sage-brush-covered hills appeared to be in general rather plentiful, though the almost perfect uniformity of conditions would naturally bring the number of species inhabiting this section within narrow limits. The birds of the sage-brush were found to be for the most part very shy,—a result, doubtless, of the continual watchfulness against enemies demanded by the unprotecting nature of their environment.

Aside from the planting of trees on the ranches already mentioned, human agency has to some extent modified the distribution of summer birds in the region under consideration by the construction of reservoirs and irrigation ditches. There are three of these reservoirs, numbered respectively "1", "2", and "3". No. 1 is about two miles from Brogan and some distance to the westward of Willow Creek; No. 3 is in Willow Creek Canyon about eighteen miles above Brogan. Probably several species included in the present list would not have been met with but for the presence of these reservoirs.

1. *Anas platyrhynchos*. Mallard. Four Mallards were seen flying over the valley on July 13. On July 21 a considerable flock was met with in Reservoir No. 1, and the following day several were startled from an irrigating ditch. It is not at all likely that any of these birds had nested in the neighborhood. They were probably wanderers from Lake Malheur or some of the other lakes to the southwestward.

2. *Querquedula cyanoptera*. Cinnamon Teal. A female accompanied by eight very young birds was seen in an irrigating ditch June 28. The parent bird had a broken wing. Near the same place, on July 20, a female and two nearly grown young were observed, and on the following day a considerable flock was seen in Reservoir No. 1. The flock were probably of new arrivals from some other locality.

3. *Ardea h. herodias*. Great Blue Heron. On July 13 a Great Blue Heron was flushed from an irrigation ditch.

4. *Nycticorax n. naevius*. Black-crowned Night Heron. Three specimens were seen flying over the valley on June 24, and on June 29 one was startled from a thicket along Willow Creek. It is likely that a few pair nested in the bit of willow timber near Brogan.

5. *Fulica americana*. Coot. Two Coots were noted in Reservoir No. 1, on July 21.

6. *Lobipes lobatus*. Northern Phalarope. A small flock was noted about Reservoir No. 1, on July 21, and others the following day. One specimen was secured.

7. *Steganopus tricolor*. Wilson Phalarope. A small flock was seen at Reservoir No. 1, July 21.

8. *Gallinago delicata*. Wilson Snipe. On July 8 a Wilson Snipe was flushed from the sage brush! A second specimen was seen in a bog near Reservoir No. 3, on July 10.

9. *Actitis macularius*. Spotted Sandpiper. A pair of Spotted Sandpipers, evidently nesting, were seen at Reservoir No. 1, on July 1. They were observed repeatedly alighting in the tops of the sage brush.

10. *Oxyechus vociferus*. Killdeer. Very abundant along irrigating ditches and about Reservoir No. 1. A female with four half-grown young was noted in Pole Creek Canyon July 16.

11. *Colinus v. virginianus*. Bobwhite. Bobwhites were heard frequently about Brogan, but apparently they are not common.

12. *Centrocercus urophasianus*. Sage Hen. Large numbers of Sage Grouse were observed from time to time and several specimens were secured. About the

middle of July young birds from one-third to nearly full grown were met with. There were usually from five to seven young in a flock. Their hunting at this time of year could offer little sport, as they were almost as tame as domestic fowls. The specimens taken had their crops filled with leaves and young shoots of sage brush and other rank desert plants, but nevertheless they proved excellent table birds.

13. *Zenaidura m. carolinensis*. Mourning Dove. Very abundant, frequenting the sage brush and rocky cliffs by thousands, as well as the willow timber and thickets. It was always most plentiful in the neighborhood of water. Numerous nests were found. In the sage brush they were almost invariably on the ground; in the timber and thickets they were in bushes or even well up in the trees.

14. *Cathartes a. septentrionalis*. Turkey Vulture. Turkey Vultures were very common and seen daily. Good sized flocks were occasionally noted hovering about the "rim-rock" above the valley. They were doubtless nesting here, as a specimen was one day seen to alight and disappear among the rocks.

15. *Circus hudsonius*. Marsh Hawk. A Marsh Hawk was seen on the wing, June 24. A female was killed at Brogan while in the act of carrying away a young chicken.

16. *Buteo b. calurus*. Western Red-tail. A specimen was seen hovering about the cliffs of Willow Creek Canyon, July 7. A few days later a specimen was taken in the willow timber. On July 19 a nest was found near the same place. It was in a willow tree, thirty feet from the ground. There were two young birds, one looking over the edge of the nest, and the other perched beside it.

17. *Falco mexicanus*. Prairie Falcon. Four or five specimens were noted in Willow Creek Canyon, July 10, and another a few days later along Pole Creek.

18. *Falco s. sparverius*. Sparrow Hawk. Sparrow Hawks were very plentiful, especially along watercourses, where specimens were seen daily. Probably the nests were usually in Flickers' holes in perpendicular banks.

19. *Asio wilsonianus*. Long-eared Owl. On two or three occasions adult specimens were observed in the willow timber. July 23, four grown young were flushed in the same locality. They were all sitting close together, but scattered when alarmed.

20. *Otus a. macfarlanei*. MacFarlane Screech Owl. A bird of the year was taken in a willow thicket in Pole Creek Canyon, July 15. Much careful search failed to bring another specimen to light.

21. *Bubo v. pacificus*. Pacific Horned Owl. A young bird, with much down still upon it, was taken among some low trees in Pole Creek Canyon, July 19. When this specimen was shot another, evidently also young, flew from a near-by tree. They must have been reared near the spot, and probably on the flattened top of an old Magpie's nest, several of which were noted in the immediate neighborhood.

22. *Speotyto c. hypogaea*. Burrowing Owl. I was informed that Burrowing Owls had been very plentiful about Brogan earlier in the season, but only a single specimen was seen, June 22.

23. *Coccyzus a. occidentalis*. California Cuckoo. One specimen was seen in the willow timber, July 6.

24. *Dryobates p. homorus*. Batchelder Woodpecker. A single specimen, probably representing this subspecies, was met with in the willow timber, July 14.

25. *Asyndesmus lewisi*. Lewis Woodpecker. A pair of Lewis Woodpeckers were seen near a ranch house, July 9. There were tall Lombardy poplar trees

about the house, where they were probably nesting. On the following day two others were seen some miles up Willow Creek Canyon.

26. *Colaptes c. collaris*. Red-shafted Flicker. Very common along streams, and often seen well out in the sage brush. The perpendicular banks of streams form the usual nesting sites. Two or three nests were found and numerous unoccupied holes noted. One nest was examined June 29, and contained four young birds. The bank had caved a little, so that the heads of the nestlings could be seen from below their level. Only three or four woodpecker's holes were found in trees. One of these had been recently made, and evidently by a Flicker. It seems, therefore, that however long they have been nesting in banks, they will, when opportunity offers, return to their ordinary nesting site. They feed largely on the ground and in low bushes, thus being quite independent of trees.

27. *Phalaenoptilus n. nuttalli*. Nuttall Poor-will. A specimen was seen in the sage brush near Brogan, June 24, and the next day apparently the same bird was taken. One evening on coming in at dusk, one of these birds was flushed, evidently a female with a nest near by. It hovered about me repeatedly, sometimes at a distance of only a few feet, occasionally uttering a low, plaintive cry. I was told that the species had been very plentiful in the spring, but no other specimens were met with.

28. *Chordeiles v. henryi*. Western Nighthawk. Seen daily in large numbers. While found mainly in the sage brush, specimens were seen in willow trees during the day. Several nests were found.

29. *Selasphorus rufus*. Rufous Hummingbird. A Hummingbird was seen in Willow Creek Canyon, July 10, and another in Pole Creek Canyon on the following day.

30. *Tyrannus t. tyrannus*. Eastern Kingbird. Kingbirds did not appear to be very common, though several pair were noted. None were seen in the sage brush, and they probably nest only in the lower portions of the valley.

31. *Tyrannus verticalis*. Western Kingbird. Very plentiful, especially about houses where trees have been planted.

32. *Sayornis sayus*. Say Phoebe. Some half-dozen specimens of this species were seen in all. June 25 an immature bird was killed. All were in the sage brush.

33. *Empidonax d. difficilis*. Western Flycatcher. Moderately plentiful in the willow timber. A nest with four eggs was found June 28.

34. *Empidonax wrighti*. Wright Flycatcher. A pair of these flycatchers were seen in the sage brush, June 29, a second pair July 8, and some days later at least one other pair. No specimens were secured, as they were extremely shy.

35. *Otocoris a. merrilli*. Dusky Horned Lark. A single Horned Lark, probably referable to this subspecies, was seen in the sage brush near Brogan, July 25.

36. *Pica p. hudsonia*. American Magpie. Abundant and seen nearly every day. Some of the nests noted were along dry watercourses in willow bushes not more than two or three feet from the ground.

37. *Corvus c. sinuatus*. Western Raven. Ravens were occasionally observed flying over the valley, but were seldom seen to alight. They were found in much larger numbers some miles up the canyons.

38. *Corvus b. hesperis*. Western Crow. Moderately common along watercourses wherever there are trees.

39. *Dolichonyx oryzivorus*. Bobolink. On July 12, a pair of Bobolinks with a barely fledged young bird were seen in a low meadow near Brogan. On the fol-

lowing day the same pair were again observed accompanied by four or five young.

40. *Molothrus ater*. Cowbird. In the willow timber on July 12, a Yellow Warbler was observed feeding a young Cowbird. The specimen was secured. A few days later, in the same locality, a Redstart was seen feeding another full grown bird of the same species. An adult male, one of a small flock that was following a drove of horses, was killed near Brogan, July 17.

41. *Agelaius tricolor*. Tri-colored Blackbird. There was a considerable breeding colony of this species in a swampy area along the creek near Brogan, but about July 3 they all disappeared. Later numerous specimens were seen, apparently wandering.

42. *Sturnella neglecta*. Western Meadowlark. Abundant everywhere in the sage brush. Always very shy.

43. *Icterus bullocki*. Bullock Oriole. Very plentiful along watercourses and even far out in the sage brush. Several old nests were found in willows and other shrubs, some within a few feet of the ground.

44. *Euphagus cyanocephalus*. Brewer Blackbird. *Abundant; usually seen in small flocks along irrigating ditches, and sometimes in the sage brush.

45. *Carpodacus m. frontalis*. California Linnet. Observed now and then in small numbers in low parts of the valley in willow thickets and on sunflowers.

46. *Astragalinus t. pallidus*. Pallid Goldfinch. Plentiful in the lower parts of the valley. It was most frequently noted along irrigation ditches and on cultivated ground.

47. *Poecetes g. confinis*. Western Vesper Sparrow. Quite plentiful in the sage brush, usually loosely associated with other sparrows.

48. *Chondestes g. strigatus*. Western Lark Sparrow. Another species of the sage brush; the most abundant bird, perhaps, of the section.

49. *Spizella breweri*. Brewer Sparrow. Very plentiful in the sage brush. It was usually found in rather large companies, often associated with other Fringillidae, especially when coming to the bottom lands to feed on sunflower seeds.

50. *Amphispiza n. nevadensis*. Nevada Sage Sparrow. Abundant in the sage brush, commonly in scattered flocks.

51. *Melospiza m. montana*. Mountain Song Sparrow. Very abundant in the willow timber, where many pairs were making nests up to the middle of July. A few specimens were observed in Pole Creek and Willow Creek Canyons.

52. *Passerella i. schistacea*. Slate-colored Fox Sparrow. A young bird, fully feathered, was taken in the willow timber, July 18. Several others were noted in the same locality on various dates.

53. *Pipilo m. arcticus*. Arctic Towhee. Moderately common in thickets along watercourses. A female was seen feeding young July 15.

54. *Zamelodia melanocephala*. Black-headed Grosbeak. Not scarce in the willow timber and in the larger thickets throughout Willow Creek Canyon.

55. *Passerina amoena*. Lazuli Bunting. Numerous specimens were noted in thickets along watercourses, especially in Willow Creek Canyon, July 9-10.

56. *Passer domesticus*. English Sparrow. Found in considerable numbers about ranches in the valley.

57. *Piranga ludoviciana*. Western Tanager. Two or three specimens were seen in Pole Creek Canyon, July 18, and one in the willow timber the following day.

58. *Hirundo erythrogastra*. Barn Swallow. Seen in considerable numbers after the middle of July.

59. *Stelgidopteryx serripennis*. Rough-winged Swallow. Moderately common and seen almost daily; apparently nesting in the small canyons.
60. *Lanius l. excubitorides*. White-rumped Shrike. Rather common and seen almost every day in the sage brush.
61. *Vireosylva g. swainsoni*. Western Warbling Vireo. A single male, in song, was seen and secured in Pole Creek Canyon, July 19.
62. *Dendroica a. aestiva*. Yellow Warbler. Abundant in the willow timber. Occasionally seen, but not plentiful, in Pole Creek and Willow Creek Canyons.
63. *Geothlypis t. occidentalis*. Western Yellowthroat. On two occasions a Yellowthroat, presumably representing this subspecies, was heard singing in a thicket at the mouth of Willow Creek Canyon.
64. *Icteria v. longicauda*. Long-tailed Chat. Abundant in all the more extensive willow thickets.
65. *Setophaga ruticilla*. Redstart. On June 30 a pair of Redstarts were seen in the willow timber. On July 14 a female was noted feeding a young Cowbird.
66. *Oreoscoptes montanus*. Sage Thrasher. Common in the sage brush and seen nearly every day.
67. *Dumetella carolinensis*. Catbird. A considerable number of Catbirds, both young and mature, were seen in the willow timber, but none were observed elsewhere.
68. *Salpinctes o. obsoletus*. Rock Wren. Plentiful in canyons and other suitable places. Usually found in families, the young being full grown by July 1.
69. *Troglodytes a. parkmani*. Western House Wren. On June 28 a pair of these birds were seen feeding young in the nest; this was in a woodpecker's hole in a small tree in the willow timber. Two or three other specimens were noted in the same locality and one was secured.
70. *Telmatodytes p. plesius*. Western Marsh Wren. One specimen was taken in a willow thicket, July 23.
71. *Sitta canadensis*. Red-breasted Nuthatch. A bird of the year was taken in the willow timber, July 18.
72. *Penthestes a. septentrionalis*. Long-tailed Chickadee. Two or three families were met with in Pole Creek Canyon, July 1, and subsequently as many more in the willow timber, where one specimen was taken.
73. *Hylocichla u. swainsoni*. Olive-backed Thrush. Numerous specimens were seen and two or three taken in the willow timber. Many males were in full song up to the middle of July, and nesting was still apparently going on.
74. *Planesticus m. propinquus*. Western Robin. Robins were moderately common in the willow timber, but none were observed elsewhere.

NESTING OF THE CALIFORNIA CUCKOO IN LOS ANGELES COUNTY, CALIFORNIA

By ANTONIN JAY

WITH THREE PHOTOS

HAVING read with much interest the account in the January CONDOR by Mr. Alfred C. Shelton, of the nesting of the California Cuckoo (*Coccyzus a. occidentalis*) in Sonoma County, and noting that some of its habits in that locality are slightly different from what they are here, I will endeavor to give a

summary of my experience on the breeding grounds of the Cuckoo in Los Angeles County.

The bird has always been one of particular interest to me, but for the first few years of my collecting I was never able to locate it or its nest. This I now attribute to the fact that it breeds late, after most of the other birds are through nesting, and that it seems to be, at least in this vicinity, extremely local in its distribution. It may be found breeding commonly in one grove of trees, while in another grove nearby, apparently offering the same advantages for nesting, it may be entirely absent. In the lower part of Los Angeles County, within a few miles of the ocean, are numerous swampy places and river bottoms, which are surrounded by willow timber. Although much of this has been cut away of late years, there still remain some groves here and there, either uncut or second growth, and in these groves we found the Cuckoo at home. The grove in which my brother and myself

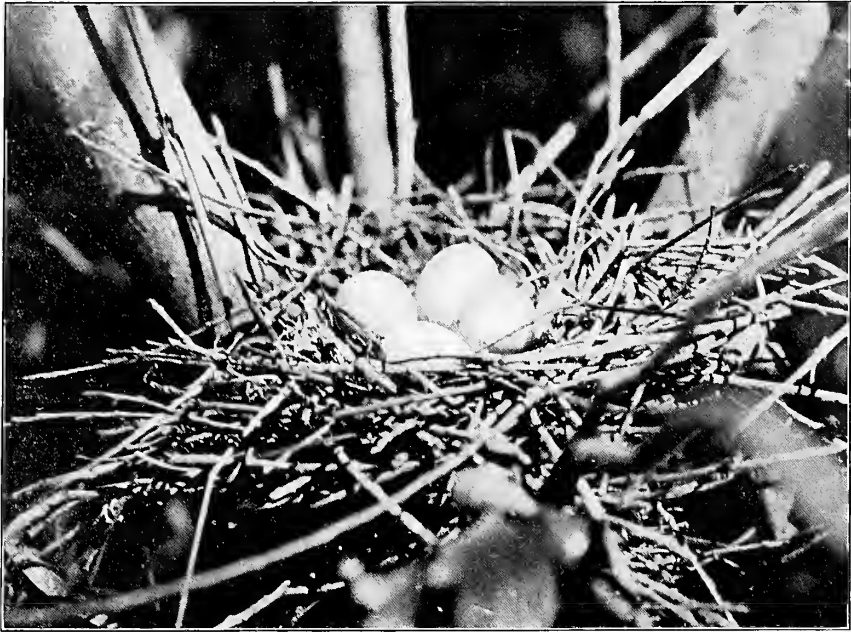


Fig. 30. NEST AND EGGS OF CALIFORNIA CUCKOO, NEAR LOS ANGELES, JULY 10, 1910

have found the most nests and have had the best opportunity to observe the nesting habits is near the old town of Wilmington.

Here the willow timber is mostly second growth, and covers an area of perhaps forty acres. It is not as dense as in some groves, and the grass grows luxuriantly affording good pasture for stock. In this grove several pairs of Cuckoos nest every summer.

The birds generally begin nesting about the middle of June, but first sets of fresh eggs may be found as late as the middle of July. The earliest nesting date that I have is of a nest found May 10, 1901, which contained three newly hatched young of the Cuckoo and two badly incubated eggs of the Mourning Dove. The young Cuckoos were dead when found. The Dove was sitting at the time and the construction of the nest showed that it had been built by the Dove. The latest date was of a nest found August 7, 1910. This contained one fresh egg and was undoubtedly a second or third laying.

Eggs are generally deposited daily until the set is complete. This, however, is not always true, and sometimes, as in the case of the cuckoo's big cousin, the Road-runner, fresh, incubated eggs and young may be found in the same nest at the same time. It is a very common thing to find two types of eggs in the same nest, undoubtedly laid by the same bird, part of the set being sharp pointed and the others blunt ended. They also vary considerably in size. The average size of twenty eggs is $.96 \times 1.29$. The largest is 1.02×1.35 , the smallest $.85 \times 1.24$, and a runt measures $.66 \times .87$.

In the majority of cases the Cuckoo builds its own nest, but in some instances it will appropriate an abandoned nest of the Mourning Dove, Black-headed Grosbeak, and possibly other birds. On June 22, 1902, I took two sets of Cuckoo's eggs from old Black-headed Grosbeak's nests. It will also on rare occasions deposit its eggs in a nest already containing those of other birds. The following instances of this occurrence have come to my attention. On July 12, 1903, my brother took a set of Cuckoo's from a Dove's nest which contained three eggs of

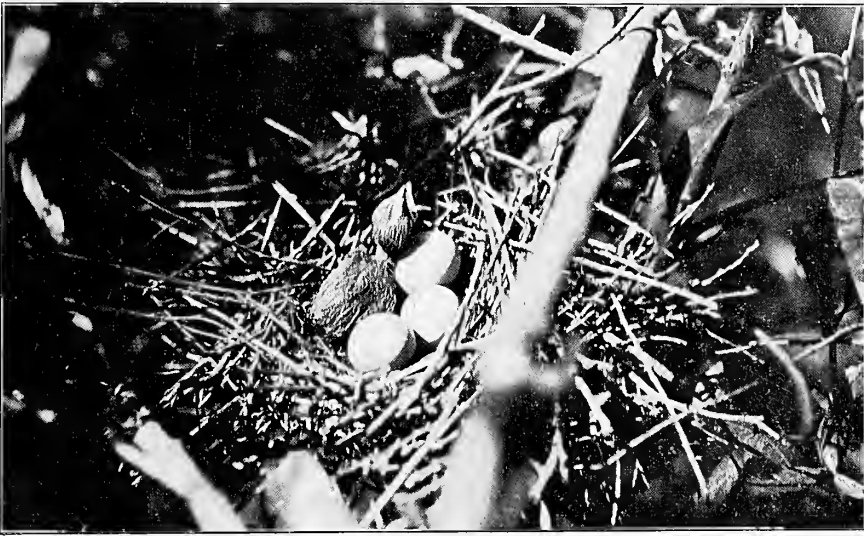


Fig. 31. NEST OF CALIFORNIA CUCKOO, JULY 24, 1910

the Cuckoo and one of the Dove; and on July 14, 1907, he found a nest of House Finch containing one egg of the Cuckoo and two of the finch. As no birds were seen near the nest we left it and returned a week later; on this date only the egg of the Cuckoo remained, both eggs of the finch being broken.

The nests as built by the Cuckoos themselves are considerably different from those of the Mourning Dove, both in material and location. They are composed almost wholly of dry willow twigs, lined either with green moss, green willow leaves, or fine straw, and are generally located near the extremity of a branch from three to twenty-five feet from the ground. I have examined over forty nests of the Cuckoo, but have failed to find a single instance where the nest was not built in a willow. I have never seen a nest built by a Cuckoo placed close to the trunk of a tree, in the manner so common to the Dove.

A typical nest measures: outside diameter nine inches, depth four inches; inside diameter three and one-half inches, depth one and one-half inches; it resembles a nest of the Pasadena Thrasher though not so bulky.

The female frequently begins depositing eggs before the nest is finished, and may be seen carrying twigs to it, after the full complement of eggs has been laid. I have not ascertained the exact period of incubation for the Cuckoo but it must be very short. I know of one case where the nest was built, three eggs laid, and incubation about one-fourth, all in a week; this must be admitted to be rapid work. The bird is a close sitter often allowing one to touch her before she will leave the nest. She will then leave as if she was crippled, and flutter along the ground for a short distance, very much like a dove.

The note in the breeding season is a quickly uttered "kuk-kuk-kuk", and is generally given at some little distance from the nest. The birds when in close proximity to the nest are usually silent. If the eggs are taken or destroyed, a second and even a third set will be laid within a very few days. The young when first hatched are naked and look as though they were made of India rubber. They grow very quickly, and I believe if undisturbed two broods are reared in a season.



Fig. 32. YOUNG OF CALIFORNIA CUCKOO, AUGUST 14, 1910

On July 10, 1910, Mr. J. Eugene Law, Mr. G. Willett, my brother and myself, in Mr. Law's auto started out to locate some new breeding grounds of the Cuckoo. We proceeded on the east side of the Los Angeles River until we had gone about sixteen miles south of the city, when we came to several small willow groves, which we started to search. It was not long before we heard the call of a Cuckoo, and Mr. Law soon discovered the nest, which was placed in the top of a slender willow about twelve feet from the ground, and contained three young. The rest of the groves were not very promising so we boarded the auto and made for the old grove, which we reached in a short time.

We had not been there long before I heard Cuckoos calling in several directions. We made for the nearest call, and after a thorough search I located a nest placed in the top of a small willow fourteen feet from the ground. This contained four slightly incubated eggs. I tried to take a photo but it was impossible, so I cut the tree and lowered it about half way down to a better position and took several pictures. I then searched in the direction where another bird was heard calling and in a short time found another nest. This was built in a willow bush about five feet from the ground and contained three badly incubated eggs. The bird was very tame and allowed me to touch her, but when I broke some small limbs which were in the way for the taking of a photo she flew away and did not return, so I was obliged to give up the picture.

I again visited the grove with Mr. Willett on July 24, and about forty feet from where I had found the first nest another was found resembling the first both in situation and construction. I took two photos of this, and we then made our way toward nest number two. Mr. Willett discovered this nest in a willow

about twelve feet from the ground. The contents were remarkable; one newly hatched young, one pipped egg, one fresh egg and one infertile egg. What seems strange to me is that in both of these cases the second set was larger than the first. We took two photos of this nest. I visited it again on August 7, but the young had left. Nearby I found another nest containing one fresh egg, which I believe was a third set from that pair of birds. I also found another nest near nest number one which contained three young and one pipped egg, and was undoubtedly also a third set. I returned again on August 14, but found the nest empty. It was just one week but the young had left. I hunted around the nest and found one of them, very likely the youngest. He was half the size of the old birds, his tail being very short. I took three photos of him.

The largest number of eggs I have found in a nest is five, and this only once. Three is about the average number though sets of two and four are not uncommon.

After the breeding season the Cuckoos spread out through the river bottoms and orchards. At this time the note is very subdued, and nothing like the loud call, as heard on the breeding grounds. The birds keep mostly in the tops of the trees and are very likely to be overlooked.

They leave for their winter home in September, the latest seen being one observed in an orange orchard in Vineland, September 22, 1904. The earliest spring record I have is one seen in the willows along the San Gabriel River at Pico, on May 5, 1907. Although shy birds they do not seem to object particularly to civilization and may be found nesting within a few hundred feet of a ranchhouse or barnyard.

AN APRIL DAY LIST OF CALAVERAS VALLEY BIRDS

By HENRY W. CARRIGER and MILTON S. RAY

THE writers made the trip to Calaveras Valley, Santa Clara County, California, on April 3 of the present year, 1910, primarily for the purpose of visiting what we had been told were extensive breeding colonies of Yellow-billed Magpie. In this, however, we were disappointed. We left Milpitas at half-past three in the afternoon, and after a walk of about twelve miles we reached the northern end of the valley where we spent the night. The next day, after covering a wide area in and around the valley, we returned to Milpitas.

Calaveras Valley presents the usual California foothill country, with oak as the principal timber. Some of the canyons were quite heavily wooded. We found bird life abundant and, as the accompanying list will show, varied as well. Only five birds were found nesting, as the date was early, and these were as follows: Western Red-tailed Hawk, freshly built nests, and eggs well advanced in incubation; Yellow-billed Magpie, only a single occupied nest found, and we did not climb to it; Coast and California Jays, newly built nests of both noted; and Bush-tit, fresh eggs found.

1. *Agelaius vociferus*. Killdeer.
2. *Lophortyx c. californicus*. California Quail.
3. *Zenaidura m. carolinensis*. Mourning Dove.
4. *Cathartes a. septentrionalis*. Turkey Vulture.
5. *Buteo b. calurus*. Western Red-tailed Hawk.
6. *Falco s. sparverius*. Sparrow Hawk.
7. *Otus a. bendirei*. California Screech Owl.

8. *Dryobates nuttalli*. Nuttall Woodpecker.
9. *Melanerpes f. bairdi*. California Woodpecker.
10. *Colaptes c. collaris*. Red-shafted Flicker.
11. *Calypte anna*. Anna Hummingbird.
12. *Tyrannus verticalis*. Western Kingbird.
13. *Sayornis nigricans*. Black Phoebe.
14. *Empidonax d. difficilis*. Western Flycatcher.
15. *Pica nuttalli*. Yellow-billed Magpie.
16. *Cyanocitta s. carbonacea*. Coast Jay.
17. *Aphelocoma c. californica*. California Jay.
18. *Corvus b. hesperis*. Western Crow.
19. *Agelaius ph. californicus*. California Bicolored Blackbird.
20. *Sturnella neglecta*. Western Meadowlark.
21. *Icterus bullocki*. Bullock Oriole.
22. *Euphagus cyanocephalus*. Brewer Blackbird.
23. *Carpodacus m. frontalis*. California Linnet.
24. *Astragalinus ps. hesperophilus*. Green-backed Goldfinch.
25. *Chondestes g. strigatus*. Western Lark Sparrow.
26. *Zonotrichia l. nuttalli*. Nuttall Sparrow.
27. *Zonotrichia coronata*. Golden-crowned Sparrow.
28. *Spizella s. arizonae*. Western Chipping Sparrow.
29. *Melospiza m. santaecrucis*. Santa Cruz Song Sparrow.
30. *Pipilo m. falcifer*. San Francisco Towhee.
31. *Pipilo c. crissalis*. California Towhee.
32. *Tachycineta t. lepida*. Violet-green Swallow.
33. *Lanius l. gambeli*. California Shrike.
34. *Vireosylva g. swainsoni*. Western Warbling Vireo.
35. *Vireo h. huttoni*. Hutton Vireo.
36. *Dendroica a. auduboni*. Audubon Warbler.
37. *Icteria v. longicauda*. Long-tailed Chat.
38. *Wilsonia p. chryseola*. Pileolated Warbler.
39. *Anthus rubescens*. American Pipit.
40. *Salpinctes o. obsoletus*. Rock Wren.
41. *Thryomanes b. spilurus*. Vigors Wren.
42. *Sitta canadensis*. Red-breasted Nuthatch.
43. *Baeolophus i. inornatus*. Plain Titmouse.
44. *Chamaea f. intermedia*. Intermediate Wren-tit.
45. *Psaltiriparus m. minimus*. California Bush-tit.
46. *Regulus c. calendula*. Ruby-crowned Kinglet.
47. *Hylocichla u. ustulata*. Russet-backed Thrush.
48. *Sialia m. occidentalis*. Western Bluebird.
49. *Junco hyemalis*, subsp? Junco.
50. *Ardea h. herodias*. Great Blue Heron.

FROM FIELD AND STUDY

Bobolink Again Noted in Idaho.—In the March-April, 1910, CONDOR, Mr. H. C. Tracy notes the occurrence of the Bobolink (*Dolichonyx oryzivorus*) near Meridian, Idaho, a point about eight miles east of my home ranch. I wish to confirm the presence of the Bobolink in this section by my own observations. In July, 1909, at a place some seven miles west and two miles north of where Mr. Tracy noted the species, I saw a male in full nuptial dress performing his characteristic aerial gyrations close by the roadside, over an alfalfa field, doubtless for the benefit of the brooding female. The bird was scarcely twenty yards away and could not possibly be mistaken for any other species. This single specimen, however, is the only one I have seen in Idaho during a residence of two years.—L. E. WYMAN.

Pinyon Jay at Salem, Oregon.—On December 21, 1910, two specimens of Pinyon Jay (*Cyanocephalus cyanocephalus*) were taken at Salem by Mr. H. S. Peck, and given to the writer for preservation. They were shot out of a flock of six, which had been seen for some time about the same locality. Both were males and in good condition. They had evidently been feeding on the ground, as their feet and plumage were much soiled with reddish clay.—M. E. PECK.

The California Shrike as a Reptile Destroyer.—On May 12, 1910, I was waiting at the isolated station of Bixby, Los Angeles County, when a California Shrike was seen to hover for an instant over an object in the grass across the road, and strike with a vigorous downward thrust, almost immediately returning to its position above, to repeat. As I advanced to find the object of its attention, the bird struck again and arose with a snake in its talons and started off down the road. I shouted and the bird dropped its trailing burden and flew to a nearby telegraph pole. I examined the reptile a moment later and found it to be a specimen of California garter snake, 18½ inches in length, with the neck severed directly behind the skull.—PINGREE I. OSBURN.

The Spotted Owl in Northern California.—On the night of August 28, 1910, Mrs. Clay and myself spent the night in camp on the north branch of Elk River, at a point ten miles a little east of south from Eureka. A maple flat, in the heart of the redwoods, shaded, and right on the edge of a stream, it was a most charming spot to spend a night. Soon after darkness fell over our camp, we were attracted by an odd, nerve-racking noise. It would start in with a kind of long-drawn-out whining, gradually increasing to a more grating sound, which gave rise to uncertain thoughts, as to its source. It first seemed on the hill-side across the creek, then came nearer, all the while increasing in distinctness, and finally seemed to be double, with ever increasing loudness, until the woods seemed uncanny. My curiosity was aroused to a nervous pitch, and I found it hard to induce my wife to follow me with a paper torch. I took my collecting barrel from the twelve gauge and slid in a shell of number sixes. After following in the direction of the noise for some little distance, I located the ghostly racket nearly over my head in a large maple tree. The noise never ceased, but was continually repeated; and save the smooth branches, sparingly tipped with rustling leaves, as they swayed under the strain of the gentle night breeze, nothing could be seen except the twinkling blue background. Finally, I remarked, "It's an owl". A spread of wings was plainly visible now, and right on a bare limb, not over three feet above my head, sat an inquisitive owl with craning neck. Then came another from higher up and perched beside the first. They were attracted by the light, and sat there stretching their necks, with as much curiosity as I had shown, at the sound of a noise that seemed almost panther-like. In a few seconds the collecting tube replaced the number sixes, and after stepping back a few feet, I took aim as best I could and fired. A hurried flapping of wings and a rustling in the branches was none too promising. The number twelve shot were not as effective as I expected, for in a moment everything was still, and not an owl fell to earth.

Early the next morning, I started a systematic search of the nearby trees. After an hour's hunting, both in the brush and on the ground, I cast my eyes on a half-dazed and blinded owl. It proved to be an immature female of the Northern Spotted Owl (*Strix occidentalis caurina*). Although we have seen several owls in the night, it was my first experience with the Spotted Owl.—C. I. CLAY.

Early Spring Arrival of Bullock Oriole in Los Angeles.—On January 27, 1911, I was much surprised to see a male Bullock Oriole (*Icterus bullocki*) in a tree in my front yard. On January 30, I also saw a male in the same place. I believe that they were two different birds as the plumage of the second one seen was much brighter than that of the first.—ANTONIN JAY.

Sparrow Notes from Fresno County, California.—In my notes on the Brewer Sparrow in the November-December CONDOR I might have stated that these little sparrows are resident throughout the entire winter, frequenting much the same area as does the Western Vesper Sparrow (*Poocetes gramineus confinis*). December 26, 1910, I found several *Spizella breweri* in an old weed-grown berry patch that was bordered on the south by a peach orchard and on the other three sides by vineyards. One specimen was taken and is now in my collection. November 20 I observed two Slate-colored Sparrows (*Passerella iliaca schistacea*) and on the twenty-fourth another which was secured. This bird was associated with a large flock of mixed sparrows. The day after Christmas I also found two or three Forbush Sparrows (*Melospiza lincolni striata*) in a large brush pile at the edge of a weedy pasture. One was collected. All these birds were found within a few miles of Fresno.

Mr. Joseph Sloanaker informs me that on the plains near Raisin City, fifteen miles southwest of Fresno, he finds the California Sage Sparrow (*Amphispiza nevadensis canescens*) to be very common during the winter. I have a specimen from there taken December 11, 1910.—JOHN G. TYLER.

Brewer Sparrow Breeding in Simi Valley.—I have found the Brewer Sparrow (*Spizella breweri*) to be a rather common resident of the Simi Valley, Ventura County, and have found many nests containing eggs and young in that vicinity. Two sets of eggs in my collection are as follows: Set of five, fresh, taken with female bird May 21, 1899, and set of three slightly incubated, taken May 28, the same year. The birds are very shy, sneaking from the nest and running through the grass instead of flying; consequently the nests are rather difficult to locate. All the nests that I have found have been on a south slope, sparsely covered with sage brush and cactus, with a thicker growth of smaller plants and shrubs between. The nests were in these smaller shrubs, generally not over a foot above the ground.—J. S. APPLETON.

Notes on Two Birds from Santa Catalina Island, California.—On February 12, 1910, while coasting along the rocks near White's Landing, Catalina Island, I saw and positively identified a Frazar Oystercatcher (*Haematopus frazari*). At first sight of us the bird left its perch on an elbow of crumbling rock and circled toward the boat, but not near enough for a shot. It continued its rapid flight, uttering the familiar call, until it was lost to sight around a dangerous jutting reef. This is the farthest north record according to all available notes that have come under my notice, published or unpublished.

On the day following, an Ancient Murrelet (*Synthliboramphus antiquus*), a rare bird in these waters at any season, was collected from a flock of eight, grouped about one-half mile off shore. The birds were exceedingly shy, and after one first dive of alarm were out of reach. The specimen obtained exhibited ability to swim under water, even after wounded.—PINGREE I. OSBURN.

Blue-winged Teal in Southern California.—The Blue-winged Teal (*Querquedula discors*) has been quite common in the marshes of Los Angeles County this winter up to the present time. I have seen many specimens that were brought in to the local taxidermists by hunters. Although this species has not been considered a common winter visitant to southern California, I think it is safe to say that it is a fairly common visitant during some winters. Other winters, however, it is rare. This irregularity is probably due to meteorological conditions.—G. WILLETT.

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of Western Ornithology

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EDITORIAL NOTES AND NEWS

A new feature on the agricultural demonstration train conducted by the University of California during the winter months and run over Southern Pacific lines within this state, is a half car devoted to birds and mammals in their economic relations. A series of specimens of the better known species of the state are displayed, together with appropriate captions, charts, etc., intended to give the desired information. Incidentally many things of value are learned from the visitors, record of which is one of the duties of the attendant. This exhibit is in charge of Mr. Harold C. Bryant who has recently been appointed assistant to the State Fish and Game Commission. In the latter service Mr. Bryant is working along economic lines, especially towards securing more satisfactory data in regard to the status of the much discussed meadow-lark.

We are gratified to learn that the preliminary canvass on behalf of the proposed Birds of California has been very encouraging, and that the success of the enterprise is now practically assured. The organization of "The Birds of California Publishing Company" is now being perfected in San Francisco, and more than a score of members of the Cooper Ornithological Club are already enrolled among its stockholders. The artist, Mr. Allan Brooks of British

Columbia, has joined Mr. Dawson at Santa Barbara, and is now engaged in the preparation of the colored plates under the author's direction.

Miss Annie M. Alexander and Miss Louise Kellogg spent the latter half of February and early March in field work in the Trinity mountain region of northwestern California. Their efforts have resulted in the acquisition of important information in regard to the winter bird life of the region. These facts will be placed on record in due course of time. Aside from Price's published observations from the high central Sierras, we have practically no knowledge of what birds occur anywhere above the lower edge of heavy snow. Persistent winter observation in the snow-covered northern and more elevated parts of the state will doubtless disclose the presence of a number of visitants from the far north not now suspected.

The February number of *Bird-Lore* is of unusual interest all the way through. Of particular mention is the series of Christmas bird censuses, over two hundred in number. This feature has proven increasingly attractive as more and wider-separated localities have been represented. The idea of simultaneous observation by amateur bird students everywhere, and the presentation of the reports of these in one place where comparison may be made, was a happy innovation in journalistic ornithology; indeed, it has been so successful that we have more than once seriously considered adopting it in *THE CONDOR*, in a modified form. For various reasons, however, the thought has been abandoned.

The American Museum of Natural History has sent a collecting party to Lower California. The reported object of this expedition is to investigate the fauna of certain heretofore neglected islands in the Gulf of California.

An expedition to the Aleutian Islands, Alaska, is being organized by Messrs. A. C. Bent and L. C. Sanford, also for the purpose of faunistic exploration. The party is to leave in April, and about four months will be devoted to the trip.

Probably no movement of late years has promised so much in the way of stimulation of the growth of the Cooper Club and general interest in ornithology, as the proposed Joint Meeting to be held soon in San Francisco and Berkeley.

A dinner (\$1.50 per plate) and business meeting will take place at the Mint Restaurant, 615 Commercial Street, San Francisco, at 7 p. m., March 31. A scientific program, rich in ornithological delicacies, will be given at South Hall, University of California, Berkeley, Saturday afternoon, April 1, at 3:30. If you will be present at the dinner notify Joseph Mailliard, 1815 Vallejo Street, San Francisco.

It is especially hoped that members living at some distance will attend. The railroads have agreed to extend one and one-third rates to the Pacific Association of Scientific Societies (of which the Cooper Club is a member) provided fifty or more tickets to Berkeley are sold from outside points.

OPEN LETTERS

EXPANSION OF THE A. O. U. CHECK-LIST
Editor THE CONDOR:

I always wondered why the American Ornithologist's Union did not live up to its name and include in the first Check-List all the species of *America*, that is, North America as far as the Isthmus of Darien. Of course I realized that at the time the Mexican boundary was a convenient division line, although merely an arbitrary one, because we fell over it into Lower California without much of any comment.

In looking over the zone map in the new Check-List, we cannot but see how vividly the whole question presents itself. It is only a question of another decade when the very nature of events will demand that our Check-List shall cover all of North America, and not merely a part of it. On the west, including Lower California as we do, we already parallel Mexico nearly half of its length. On the east Florida extends to about the 25th degree, and our country now has permanent possessions among the islands to the south. The Panama Canal Zone is permanently occupied and forms a natural boundary much more definitely than the Mexican line to the north. Ridgway, when he formulated plans for his great work, must have seen the handwriting on the wall, for he includes all this territory. As a forecast of what the future has in store, one has but to note the extensive work that is quietly going on to the south of us. The National Museum, through Nelson and others, has covered an immense section. The Field Museum, through Dearborn and Ferry, has invaded Costa Rica and many of the islands. The American Museum of Natural History is also in the field, as are an immense number of private collectors. Now our government has already taken steps to cover the Canal Zone completely; and this is only the start!

A decade or two ago the American Ornithologist's Union was a pretty small band, with a big proposition, spread out as far as the Pacific, before it. Instead of being satisfied with local growth, as many societies might have been, this same A. O. U. quickly grasped its opportunity and spread during this period until it is powerfully entrenched in every state of the Union. A more loyal group of ornithologists does not exist in the world! It makes one feel that this prompt response to conditions as they arise, will cause the men who have so safely guided the A. O. U. in the past to meet the conditions which are so rapidly shaping for a still further expansion when the next Check-List is published ten years hence. By that time most of the states will have published state lists each giving the status of every species within its boundaries; but a much more comprehensive understanding can be had of our migratory birds, if the territory of the

Check-List include everything north of the natural division at and including the Canal Zone.

What do C. O. C. members think of the proposition as a whole? You know the west has made the A. O. U. sit up and look, more than once. Why can't we start something going along these lines? Of course I haven't brought the facts together properly or fully; but merely touched here and there. I feel, however, that we are fast approaching a point where we can begin to agitate, and within a few years, at most, the whole thing will loom up as a necessity apparent to all.

FRANK S. DAGGETT
Chicago, January 5, 1911

PERSONAL, TO COOPER CLUB MEMBERS:

In accepting the responsibility imposed upon me by the favorable action of the Cooper Club in endorsing my proposal for a cooperative work upon The Birds of California, I do so in full confidence that the members of the Club will really cooperate. Indeed, our very name pledges us to *Cooperation*. While it is true that any leader receives a large amount (often an undue one) of credit for any successful enterprise, it is still more true that all who help have a right to say "*we did it.*" That is just what I should wish for "The Birds of California."

If, then, you ask me how you may help, I say: First, by publishing in THE CONDOR those interesting notes you have meant all along to send in sometime. Practically every observer has or has had unique opportunities in the case of several species. Let us hear about these soon, so that the results may be available for assimilation in "The Birds of California."

Then, too, being a bit of a stranger, and having to make the most of five all too brief seasons, I shall appreciate any personal guidance afield which you may care to offer. I shall be especially glad to hear of any unusual photographic opportunities, whether of nesting or flocking birds. Please be patient here. I cannot always rush across the state to photograph a single nest, even though it be a rare one. But if your opportunities "stack up" at a favorable time, or if you are able to mark down something good for another season, it would be a great courtesy to advise me.

Those of you who use the camera are sure to have some choice numbers which ought to appear in "The Birds of California." Don't be bashful. It's your book. On the other hand, if someone else sends in something better for final selection, we know that you won't feel hurt that we cannot use all of your material. We shall all want our book to be the best possible, whoever gets credit for it.

Of course you will let me put the business side of the enterprise up to you at the earliest

favorable moment. This will be a personal matter and we'll get to it all in good time. After that you will be a booster. All your friends know that you are interested in birds. May they not also know that you are interested in the success of the California bird-book? We are going to succeed, of course; but success will mean so much more to us if we can all share it. Thank you.

W. LEON DAWSON

Santa Barbara, February 20, 1911.

PUBLICATIONS REVIEWED

MILLER ON FOSSIL BIRDS OF CALIFORNIA AND OREGON.—Mr. Loye Holmes Miller is continuing his studies upon prehistoric birds, remains of which are becoming available in remarkable quantity through the work of the University of California department of Paleontology under the direction of Dr. John C. Merriam. Since our last notice of Miller's work (CONDOR XII, January 1910, p. 48) three more papers have appeared. In each case the well-chosen title gives a clear idea of the contents of the paper.

The first article deals with the "Wading Birds from the Quarternary Asphalt Beds of Rancho la Brea" (Univ. Calif. Publ. Geol. V, August 5, 1910, pp. 439-448, figs. 1-8). Contrary to expectation wading birds are found to be but poorly represented in the Rancho la Brea beds, located near Los Angeles. But five species have so far been found, and of these only seventeen individuals are represented. Fourteen of these individuals are referred to the subfamily *Ciconiinae*, which is at present foreign to the region. *Ciconia maltha*, not distantly related to the White Stork of the Old World, is described as new. The other member of the subfamily is the Jabiru (*Jabiru mycteria*). Of the cranes (*Gruidae*) both *Grus canadensis*, and a newly described species related to it, *Grus minor*, were found; and of the herons (*Ardeidae*) only *Ardea herodias*.

In the next paper Miller treats of "the Condor-like Vultures of Rancho la Brea" (Univ. Calif. Publ. Geol. VI, November 28, 1910, pp. 1-19, figs. 1 a and 1 b to 5 a and 5 b). The abundance of the remains of these huge scavenging birds is accounted for by the author on the ground that the Quarternary mammalian fauna in this region was abundant, remains of both herbivorous and carnivorous species of large size being numerous in the same beds. The asphalt furnished a trap for these beasts, and the carcasses of these in turn lured the vultures to their doom. The keen senses of the birds, both of sight and of smell, were doubtless effective at great distances, and thus toll was taken from a large area. The relatively large number of vulturine representatives might thus be in part explained. Only one of the four species to which the material is referred exists at the present time; this is the California Condor (*Gymnogyps californianus*),

represented by a series of fourteen fossil tarsi. *Sarcorhamphus clarki* is described as new and most nearly related to the Andean Condor. Quite different from either of the above are *Cathartornis gracilis* and *Pleistogyps rex*, both genus and species being newly named in each case. These are of larger size than either of the existing condors; in fact *Pleistogyps*, because of its great size and the fact that it is represented only by tarsi, while *Teratornis* was described from skull and pectoral girdle, arouses the suspicion that it might, indeed, be identified with *Teratornis*. The author arrives at his decision to the contrary by carefully weighing the various considerations concerned with such a problem. The reader is left impressed with the conclusiveness of the author's argument. All the way through, the present paper is notable for detailed, osteological study and cautious but imaginative inferential reasoning.

The third paper contributes "Additions to the Avifauna of the Pleistocene Deposits at Fossil Lake, Oregon" (Univ. Calif. Publ. Geol. VI, February 4, 1911, pp. 79-87, figs. 1-3). This deposit had been previously pretty thoroughly exploited by Shufeldt. In Miller's paper, three forms are recorded, not mentioned by Shufeldt, and one of these, *Echmophorus lucasi*, is described as new. A summarized list of all the species of the avifauna is given. This otherwise excellent paper is marred by numerous mis-spelled words, a feature doubtless deplored by all concerned with the publication of the paper, but due to a fortuitous lapse of the pen or mind to which no one appears to be wholly immune.—J. G.

NOTES ON THE PASSENGER PIGEON, by W. J. MCGEE (Science, n. s., vol. XXXII, no. 835, December 30, 1910, pp. 958-964).

It is not at all probable that ornithologists will regard seriously the statement of Mr. McGee that the Passenger Pigeon is still to be found in abundance in southern Arizona, in the extremely arid desert region between Nogales and Yuma. Had the pigeon sought the seclusion of the desert for a respite from incessant persecution, it is at least probable that some one of the numerous collectors that have explored the region would have secured a specimen at some time. Such has not been the case, nor did the naturalists accompanying the United States Mexican Boundary Survey report their occurrence in that region, though in 1894 they visited the exact spot where Mr. McGee claims to have seen the birds (Tinajas Altas). As he was quite evidently unable to distinguish between the California and Gambel Quails we are probably safe in assuming that he mistook some other species for the Passenger Pigeon.—H. S. S.

TRACY ON THE "SIGNIFICANCE OF WHITE MARKINGS IN BIRDS OF THE ORDER PASSERI-

FORMES" (Univ. Calif. Publ. Zool. VI, December 1910, pp. 285-312).—Mr. Henry Chester Tracy under the above title adds an unusually important contribution to both fact and theory relative to the general subject of adaptive coloration. The province particularly dealt with is that of so-called directive markings, which term has been employed in explaining a type of coloration where white or light patches are conspicuously contrasted with black or dark areas. This theory, of the directive function of contrasted markings, has recently been unqualifiedly condemned by A. H. Thayer who has been able to see in them only an obliterative, or concealing effect. Tracy defends the directive theory most convincingly, both with argument and an array of fact, the latter derived from field observation of passerine birds. The author under review brings out incontrovertibly the remarkable correlation existing between the possession of *revealing* (a preferred substitute for the word directive) marks, the flocking habits, and use of location notes, in many birds which forage in the open. The significance of this correlation is self-evident.

A fundamental point emphasized by Tracy is the usual association of *motion* with the optimum display of contrasted markings. Perfect quiet on the part of a bird possessing such a pattern might in truth result in obliteration against a checkered background; but quick movement, as when the bird takes flight, brings the same pattern to the instant attention of the observer. In other words the function of concealing might be subserved by the coloration of a bird *at rest*, when the same coloration would render the bird conspicuous *in motion*.

Tracy's attitude throughout is modest and conservative. Although he clearly holds definite views, he presents these always tentatively, giving the reader a fair chance to weigh the evidence pro and con. The paper in hand is well worth careful study by every observer of birds. Data contributory to the solution of problems of this nature are probably to be derived chiefly from observation of the living animal under natural conditions. The devotee of field ornithology will find here one way in which part of his horde of facts can be of use in a large field of philosophic inquiry.—J. G.

BIRDS AND MAMMALS OF NORTHWESTERN COLORADO, BY A. H. FELGER. [The University of Colorado Studies, vol. VII, no. 2, January, 1910, pp. 132-146.]

The report deals mainly with the species seen on an expedition into northwestern Colorado, August 1 to September 4, 1909, but includes as well "those reported on good authority from the region," the birds amounting altogether to 133 species. The annotations relate principally to the manner and place of occurrence of the species observed. Considered as the result of observations made during a

single month the list is a long one; as a list of the birds occurring in that part of Colorado it is evidently incomplete, judging from statements in the introduction. It is hard to tell in which category the author wished it to fall. To the reviewer the practice of including in such publications species which were *not* encountered but which the author believes should occur there seems objectionable. To take a particular instance in the present paper, under *Otocoris alpestris leucolaema* the only statement made is that "not a single bird of this common species was seen on the whole trip." If none were seen why is it considered a common species, or why is it entered at all?

The paper will be of undoubted value to any one studying the distribution of birds in Colorado, but such a student will be forced to ignore a number of the records.—H. S. S.

THE TERRESTRIAL | MAMMALS AND BIRDS | OF NORTHEAST GREENLAND | Biological Observations | by | A. L. V. MANNICHE (=Danish Expedition to Northeast Greenland, 1906-1908, vol. v, no. 1; 1910; pp. 1-200, figs. 1-20, pls. I-VII).

For two years the author of the paper under notice was stationed on the northeast coast of Greenland at lat. 76° 46'. The immediate vicinity of his permanent quarters fortunately proved to be surprisingly prolific of animal life, more so than any other parts of the adjacent region which were visited at different seasons by other members of the expedition. Dr. Manniche devoted his attention to a biological study of the neighborhood, and the present report on the eight species of mammals and thirty-eight of birds is proof of close observation and discriminating judgment.

Confining our attention to the portion of the work relating to birds, some 100 pages, we find exceedingly interesting accounts given of the breeding habits of such far northern visitors as the Knot, Sanderling and Ivory Gull. Eggs of the latter two were found. Although no eggs of the Knot were actually secured, close observation of the birds throughout the breeding season was possible. The account of the ptarmigan shows strikingly close agreement with the facts recorded of the Rock Ptarmigan of Alaska. The author shows a clear conception of the molt-processes, until not so very long ago obscurely understood. The courting and nidification of the Red Phalarope is most entertainingly narrated. Those interested in the problem of sexual coloration will find here some facts of significant bearing.

The paper in hand is altogether of a biological and faunistic nature. Although brief descriptive notes on the specimens secured are presented, there is no evidence of close systematic enquiry. The nomenclature is scarcely recognizable from the standpoint of the A. O. U. Check-List, and no attention is given to subspecific distinctions. Thus the ptarmigan is "*Lagopus mutus*", with no reference to *L. rupestris reinhardt*. However, this cannot be emphasized as a fault, when the whole paper is avowedly concerned only with ecology and biography.—J. G.

For Sale, Exchange and Want Column.—In this space members of the Cooper Club are allowed one notice of about 35 words in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. Notices must be written plainly, on one side only of a clean sheet of paper. For this department address W. LEE CHAMBERS, R. D. no. 1, Box 73 D, Los Angeles, Calif.

WANTED.—Naturalist, Austin, Tex., I, nos. 2 and 6; The Naturalist, Oregon City, I, no. 12, Nov.-Dec. 1894; Bull. Michigan Orn. Club, V, no. 3; Random Notes on Nat. Hist., I, nos. 1 to 4, II, no. 12, III, 5 to 11. Good prices paid.—DR. WM. C. BRAISLIN, 556 Washington Avenue, Brooklyn, N. Y.

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and 266; The Journal of the Maine Orn. Soc., vol. IV, nos. 2, 3, 4, vol. V, nos. 1, 4; The Iowa Ornithologist, vol. II, nos. 1, 2, 4, vol. IV, nos. 1, 2, 3, 4.—G. H. MESSENGER, President Linden Bank, Linden, Iowa.

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Volume XIII

May-June, 1911

Number 3



COOPER ORNITHOLOGICAL CLUB



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THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XIII

May-June, 1911

Number 3

THE LITERARY AND OTHER PRINCIPLES IN ORNITHOLOGICAL WRITING

By MILTON S. RAY

FROM time to time, in our various ornithological journals, appears criticism of what is termed "popular" ornithology. To discuss this and similar matters the present article is written. I consider the use of the word "popular" in connection with ornithological writing to be rather indefinite and misleading. If the line be drawn between scientific and unscientific ornithology the difference I think would be more clearly defined, for in my opinion any article treating of bird life or bird anatomy, wherein exact facts are given without any deviation from the truth, is scientific no matter in what particular style it is written, popular or otherwise.

To some, however, an article must fairly bristle with Latin before it becomes of value. To such, a check-list of exclusively Latin names is scientific; but add the vernacular as well, together with pertinent field notes, and although the article has gained instead of lost, it is now deemed semi-popular. I appreciate the advantages of Latin as an international language in nomenclature, but here, I think, its advantages end. The former custom of giving all the birds foreign names as well, has, too, a certain merit. I have an old English work which treats almost every bird in this fashion, the description of the raven beginning for instance: "Corvus corax, the Raven. This well known bird is the Korax of the Greeks; Corvus of the Latins; Corvo, Corbo, and Corvo Grosso of the modern Italians; El Cuervo of the Spaniards; Corbeau of the French; Der Rabe and Der Kohlraube of the Germans; Korp of the Swedes; Raun of the Danes; Corbie of the Scotch; Cigfran of the Welsh; Kaw-kaw-gew of the Cree Indians and Toolloo-ak of the Esquimaux." I can read this with patience and some interest but when it comes to the

work of such extremists as may be seen for instance on page 23 of *The Auk*, vol. XVI, I desire to protest. Here the subspecific characters of a very questionable subspecies of *Hylocichla* are given in this way. "CHARS. SUBSP.—*Hylocichla H. u. ustulatae similis, sed hypochondriis et partibus superioribus pallidioribus ac minus rufescentibus.*" Alas! poor English, to the writer, evidently seemed inadequate to explain these intricate differences, so it became necessary to resort to a language worse than foreign. Dr. Samuel Johnson has said, speaking of certain writings of Addison in Latin, that "when matter is low or scanty, a dead language, in which nothing is mean because nothing is familiar, affords great conveniences, and, by the sonorous magnificence of Roman syllables, the writer conceals penury of thought often from the reader and often from himself." There are other instances, I think, beside certain works of Addison in Latin, to which this is also applicable.

One of our foremost ornithologists has sought to differentiate scientific and popular ornithology by the separation of the study of dead birds from live ones, and at first glance this may perhaps seem a very pleasant arrangement. In the museum the corpse is measured, dissected, its every wing and tail feather counted, and every curve of its bill or claw, and often trivial differences in coloration noted. Why do not these same exact methods prevail in the field? The answer in my opinion is because the work of the bird anatomists, following as it does certain set and well defined lines is by far the simpler. If field-work, which they are pleased to call "popular" ornithology, is so simple why can not some of these closet naturalists spare a few hours in the field and settle some of the little problems which puzzle us poor field ornithologists, such as comparative velocity of bird-flights, migration, instinct, susceptibility to the charm of certain snakes, the cause of the heavy proportion of infertile eggs in certain species, decoy nests, the possible use of bird sentinels in nesting time, the motionless flight of the gull with and against the wind, the cause of tender shelled eggs, the reason for spotted eggs when not explainable by the theory of protective coloration, etc., etc. I believe much work in the field and in the museum, as well, must be done before these problems are solved; yet certain writers contend that articles dealing with such subjects are necessarily "popular." Surely they are! Because the live bird is, and always will be, more interesting than a dead bird; but what folly to insist that the study of one is more scientific than the other!

There are certain non-essential things not directly connected with the study of bird life, that can, I think, be eliminated in the preparation of a manuscript without the latter losing any of its scientific value. For instance, in describing the nest of a killdeer as merely a small collection of even-sized pebbles, if one should enlarge and give the measurements, shape and kind of each pebble, would such information be of any particular value? Yet, on the other hand while sometimes equally irrelevant information is given, certain seemingly unimportant details are passed unnoticed. An instance of this latter sort, liable perhaps to have been overlooked if it had not been so frequent, was the finding at Lake Valley last June (1910), all told, five nests of the House Finch (*Carpodacus mexicanus frontalis*) which were in close proximity to those of the Western Robin (*Planesticus migratorius propinquus*). Perhaps these cases were simply the result of accident. The nests of the House Finch in every instance were the last built, but this fact proves little as this is in accordance with the usual nesting dates of the two species in the valley. In a region overrun with chipmunks, whose depredations on bird life are incalculable, a desire on the part of the House Finch to gain protection by propinquity to the home of a larger and more combative bird is certainly an interesting trait and worthy of

further investigation. Another instance was the finding, in the above locality, of several deserted nests of the Western Robin and the Sierra Hermit Thrush (*Hylocichla guttata sequoiensis*) containing either two or three apparently fresh eggs, while a dried up egg-shell lay beside them. I suspected whatever agency had destroyed the one egg was incapable of destroying the others, and concluded it to be the work of some insect. It was only last year, however, that I was afforded the opportunity of solving it. I came across deserted nests of eggs of both the above mentioned birds. In each nest an egg had been clawed, and the nest was swarming with ants. Whether the birds had deserted just after the egg had been clawed, or on the arrival of the ants I am not prepared to say.

It is a mistake, I think, to abbreviate in any way the Latin name even if it exhaust every letter in the alphabet; for its chief virtue lies in being an *exact* name and this is lost when the name is not given in full. An instance of this kind occurs in the work of a very thorough ornithologist and one of unquestioned ability, and may be seen on page 424 of Davie's *Nests and Eggs of North American Birds*, 5th Edition. A nest is stated to have been placed "in a Negundo 30 feet high." I suspect this originally stood *A. negundo* and was misprinted to its present form, and that it was intended to be an abbreviation of *Acer negundo californicum*, the Cut-leaved Maple. Surely if it was worth while using the Latin term it was worth while giving it in full, otherwise why would not the vernacular name have sufficed?

No one can but realize the monumental work that has been done by Ridgway in the interests of ornithology, nor doubt its scientific value. Yet the writer must acknowledge in perusing that great book, "The Birds of North and Middle America", that he is puzzled to know the object of the vague and scattered descriptions of eggs given. These are almost absent in the earlier volumes but quite common in vols. III and IV. As they stand I do not see how they can be of much use to the student of oology, and if they are considered of value why were they not given uniformly throughout the work?

Personally I am opposed to the present rush to name new subspecies based on the ideas of a single worker, often on doubtful or insufficient evidence, frequently on a single skin, and, as recently, on only a portion of one. These I think only tend to hinder our progress in the study of geographical variation, for, when passed upon by the authorized judges, the past has shown that over half of these new subspecies are bowled over like ten pins, although their remains clog our literature for years afterward. If a constituted body has the authority to determine the standing of these claimants to subspecific rank why would it not be the better plan to first submit the specimens with their proposed name, etc., to the committee, and such as are favorably passed upon given out for publication?

I favor, too, set vernacular names based on the true relationship of birds, and I am opposed to calling, for instance, a falcon a sparrow hawk, or a turkey vulture a turkey buzzard simply because the latter names are the most familiar to the general public. The public needs education not misinformation.

As to the Latin names, like many others I would like to see them possessed of a cast iron stability. But as long as certain priority hunters are allowed to, and persist in delving into long forgotten, obscure and musty books, to find out what some one called a certain bird in 1847 or some other year, it appears the ceaseless change will continue. And all to what purpose? The Check-List as it stands is ample for all purposes, I think, and a new canon should declare it permanent, allowing no change except cancellation where a supposed species or subspecies is found nonexistent, or change in a generic name where the species is found to have been placed in the wrong genus. And after all what reasons can be given against

stable nomenclature, except mostly those of sentiment? Suppose some early writer did call the Eastern Bluebird *Sialia sialis* in Trego's Geography in 1843 or some other obscure book? If he did not care enough about publishing it in the proper channels why should we take the trouble to resuscitate a name that now lies buried? And as a fact these early workers were in the true sense seldom discoverers of many of the species they named, for many of these birds were known by name to the Indians for untold centuries perhaps, before the white man came. And that the former were often close observers of bird life can be seen by perusal of those unique articles in the earlier volumes of *The Osprey* by Chief Pokagon of the Pottawattonies: "Ke-gon Pe-nay-sey and Win-ge-zee,"¹ "Au-mon Re-nay-shen,"² and "O-jaw-aw-ne".³ There is something pathetic in the writings of this old Indian chief, almost the last of a vanishing race, telling, and with a rare command of language, of youthful journeys from his wigwam through the unbroken wilderness to study the birds.

Ridgway has said that "the classification of birds, their synonymies * * * is scientific." This is no doubt true, but to me the continual wrangling and wrestling over priority seems a rather mild form of it, and I think it is apparent that no matter what arguments are offered in favor of the present system, that it is detrimental to the advancement of ornithology, and proof lies in the fact that even some of the museums, wearied by the endless change of names have adopted the vernacular in labeling skins. I have little doubt that a post card ballot of active ornithologists would show an overwhelming majority in favor of nomenclatural stability.

Unscientific ornithology, such as those inexact, careless or exaggerated articles which frequently appear in current magazines or newspapers, merits but a passing notice. Most of these articles are soon forgotten, as they deserve to be. Yet even though they misinform, as they serve to interest the general public in bird study they are to some extent beneficial. The most glaring collection of mis-statements I ever read was published in the *San Francisco Call*, February 3, 1895, entitled "The Singing Birds of California." Illustrations from Wood's Natural History were used in connection, and our state credited with such surprising species as the Vervain Hummingbird, Chaffinch, Yellow Hammer,⁴ etc. The text is on a par with the illustrations and a very short excerpt will suffice: "The orchardist does declare war against the yellow-hammer which belongs to the family of buntings and is cousin to the ortolan. He feeds on almonds when they are young and milky and they make the bird very toothsome picking for the epicure. He has a cry rather than a song which is variously translated." Perhaps in this latter respect there will be found considerable resemblance between the cry mentioned and the bird of the excerpt itself.

The opinion seems prevalent that the combination of a good writer and a good ornithologist is rare, and that the polish literature gives an article on ornithology is detrimental to its interests. With those who hold such views I beg to differ. If one refers to the work of almost any of our foremost ornithologists it will be found, I think, that while their style is not highly figurative, for the occasion seldom demands it, it is almost always fluent, forceful and clear. In fact the true scientist, is, I think, one who has mastered the intricate details of his work and is able to tell of them. If he lacks the flow of words to depict his discoveries or theories in accurate, clear and convincing language how can we much believe in his accom-

1. The White-headed Eagle and the Osprey, Vol. I, p. 51.

2. The Chimney Swift, Vol. I, p. 120.

3. The Bluebird, Vol. II, p. 102.

4 Not *Colaptes cafer collaris*; the bird in the cut is evidently *Emberiza citrinella*.

plishments? I can see no need for this endeavoring to take away the literary value from ornithological writing, for I consider it a decided asset. I have read articles on subjects of little range, and that usually are of a rather dry nature, yet written in such an entertaining way that they were equally as interesting as some experiences in the field, and yet not a whit of their scientific value was lost. The writer who inspires, instructs; and he is one who possesses true enthusiasm, accurate knowledge and the mastery of word values.

Audubon, famous as an ornithologist, has had some of his writings placed among the world's literary classics. One cannot read Bendire without appreciating his delightful style, and these are only a few of many. For files of *The Auk*, *The Osprey* and our own CONDOR contain articles which aside from their scientific value must be given a high rank in a literary way. The high water mark in the latter respect is reached by Welch, I think, in his famous "Echoes from an Outing." I frankly confess that this fascinating reverie was instrumental in luring me off to Fyffe in the Sierran wilds one summer, and as a result I have journeyed to some point in the region almost every year since. It has been said that Welch's article is not scientific on account of its lack of the definite Latin names, and because of this must remain buried where it now is. Perhaps as far as scientific records are concerned this may prove correct, but I believe it will receive a place in literature and still be enjoyed, while descriptions of some of the myriad subspecies of song sparrows, which brought joy to the hearts of their discoverers, are buried beneath the dust of years. True literature is not for an age but for all time, and an example is shown by the work of Gilbert White, which loses none of its interest, and continues to be reprinted, year after year. Where White gains is the felicity he has for blending real information and literature.

And I contend further that not only does literature make scientific ornithology more readable and interesting but that it is also a positive *aid* and that at times ornithological science must lean heavily on its helpmate, literature. Has our advance in ornithology been so great that the help literature gives can be cast aside entirely? If one desires to learn of the song of the Hermit Thrush or Water Ouzel will it be found in the bulky technical works? In fact is bird song itself not rather art than science? Can one learn ALL of the everchanging iridescence of the throat of a hummingbird, or the rare painting on a falcon's egg by such a flat description as purple no. 38 or red no. 122? I maintain that there are *certain* things in ornithology that require both literature and science jointly to be properly described.

It is a generally accepted fact, I believe, that many readers shun the strictly technical articles, and this I attribute to a number of causes. The principal reason, I think, is that most articles of this nature treat of geographical variation, a subject which has lost interest because the standing of so many of the subspecies is seldom a settled fact. Other reasons are that many technical articles lack the very literary quality I have spoken of, and also that many readers have not acquired a taste for comparative anatomy. A reader voiced this latter sentiment in the technical *Auk*, vol. xx, page 234, to which the editors replied in what I considered a surprisingly frank and rather un-*Auk*like fashion, saying in part: "It is the aim of the editorial staff of *The Auk* to cater especially to the popular side of ornithology, to furnish to the amateur readers papers that they will enjoy and find profitable. The technical side will always take care of itself; the demand for space for such contributions is always greater than the supply and it is papers of this character that get the cold shoulder and not those of a popular character, provided of course they contain something worthy of record."

While I realize the wide gulf that must ever exist between poetry and orni-

thology, to close the present essay without some reference, at least, to the highest of all forms of literature would be to leave it in a sense incomplete. Although it has often been stated to the contrary I hope to show that the possession of the poetic temperament does not necessarily incapacitate one for scientific work. Many instances in proof of this could be given, but a few will perhaps suffice as well. One of these is the case of Alexander Wilson, whose standing as an ornithologist is unquestioned. A poem by Wilson is reprinted in *The Osprey*, vol. III, p. 98. Here in our own club we have Mr. Lyman Belding who has done much conscientious bird work. He is a poet as well, and verse entitled "The Sierras in June" appeared in vol. II of THE CONDOR. Still another case is that of Hudson Maxim, the great English inventor, who is also a poet of no mean order. The *Literary Digest*, vol. 41, no. 14, in reviewing Maxim's "The Science of Poetry and the Philosophy of Language," states in part as follows: "The mere fact of his writing such a work, is in itself interesting; for, apart from its distinctive merits, it gives new evidence of the versatility which so frequently characterizes high intellectual talents. That an eminent scientific inventor should appear as an expert critic of poetics will, undoubtedly, surprise many minds; but many others will remember how philosophers have come to recognize it as axiomatic that men of large capacity are capable of varying their achievements according to volition in many directions * * *. It is somewhat startling to find a foremost scientist affirming that poetry has a stronger hold on us than science itself * * *. But the chief charm of the literary feat, for most readers, may be found in the plunges made by the author himself into poetical composition."

Birds, ever especial favorites of the poets, have inspired such immortal masterpieces as Shelley's "To a Skylark", and Keats' "Ode to a Nightingale", and no one I think can hear the song of the Water Ouzel amid the roar and spray of some mountain torrent, or the cold, pure music of the lone Hermit Thrush in some dark wooded canyon, music like that of the masters, apparently simple but profoundly deep, and not become appreciative to some extent of the sentiment that moves the poet. At times I have felt this spell myself, but poetical composition does not come easily to me and I have written but little, while that published is limited to a few lines in *The Auk* of October, 1906, and those given at the end of this article. For these latter lines I make little claim for merit, and no doubt those who have taken up this branch of literature will be of the opinion they should have been written in the octosyllabic couplet rather than in blank verse. In this instance, however, the latter serves my purpose best as I desire to show that it is the metre and rhythm, and not necessarily the rhyme that gives the word pictures their sentimental setting. Poetry at its best excels in the indelible imprint it leaves on the minds of those susceptible to its influences, and there are certain famous passages that haunt one's memory forever. Great condensation too is another of its virtues and to take a very modest example, this closing poem, for instance, would no doubt tax twice the number of words in prose. I may say in explanation I spent two weeks on the Farallon Islands in May and June of 1904, and anyone interested will find the birds and particularly the remarkable nests of the Rock Wren described at length in the October *Auk* of the same year.

BIRDS OF THE FARALLONES

And while it yet was spring the sea-bird hordes
Would come, to make the isles their summer home;
The laughing murrens that crowded shelving cliff

And dark surf-echoing cave; the cormorants,
 Jet fishermen and gatherers of mosses gay,
 Who on the terraced rock their cities of weed
 Would build; web-footed pigeons of the sea
 That whispering, cooed along the spray-tossed shores;
 The snowy gulls with mouse-gray backs and black-
 Tipped wings, that plundered all their feathered kin;
 The queer-beaked puffins with long flowing curls
 That in the rock recesses lived; and with
 The night, from sea, and from their burrows came
 The auklet-thousands with weird cries; and from
 The crannied rocks the perfumed petrel,
 Daintiest traveller of the sea, lone welcomer of storms.

But all this noisy crew gave nought to the isles
 Of song. Yet, wandering with the winds
 From granite gorge or sea-opposing cliff
 Rare melody would come: the rock-wren's song;
 That oft the islanders would pause to hear,
 So wild and free and crystal clear it was!
 So strangely sweet, so ever new! And they
 Had found where paths by myriad pebbles paved
 To hidden bowers led; quaint tiny caves
 Wherein a floor was made of tide-worn stones
 And bones of furred and finned and feathered tribes,
 Long-bleached by sea and sun and inlaid bright
 With bits of abalone pearl, while scattered lay
 A world of treasure! No jackdaw's cache
 Ere rivaled the wealth of these Salpinctian homes.

NESTING HABITS OF THE WESTERN FLYCATCHER

By HARRIET WILLIAMS MYERS

WITH ONE PHOTO

ON June 17, 1910, I made a trip to Camp Rincon, in the San Gabriel Canyon, for a week's bird study. From Los Angeles we went by trolley to Azusa, and from there 14 miles by stage through the San Gabriel Canyon to the camp, which is very near the San Gabriel River and has an elevation of 2000 feet. One of the pretty trips from this camp was to a place called Fern Canyon. It extended about one half mile into the mountains and was so narrow in many places that it was little more than a trail beside a small stream. The banks rose high above our heads and were overgrown with shrubs and trees. Alders predominated, but there were also rock maples, oaks, sycamores and bays.

On June 21, at almost the end of the canyon, in an alder tree that grew close beside the water, I discovered a pair of Western Flycatchers (*Empidonax difficilis*) feeding their young. The nest was on the southeast side of the tree in a crotch made by a dead stub a foot long. There were no leaves near it, so our view was

unobstructed. Though this crotch was about twenty feet from the foot of the tree, the bank rising steeply from the stream passed not far from the nesting site. On this sloping bank my companion and myself were able to rest and watch every move of the birds.

The nest was darker than the tree trunk but matched the shadow in the crotch. It was made entirely of fine plant fibers. The location of the nest reminded me of one of the Western Gnatcatcher which I once watched which was built on the side of a sycamore tree in much the same way, the chief difference being that in the latter case the supports were new leafy shoots.

It was about 8:40 when we sat down to watch these little flycatchers. At that time both birds fed, one having a moth in its bill which was fed to several young. After feeding, the female sat on a near-by limb and guarded. The male fed four times in six minutes, resting on the edge of the nest one-half minute after the last



Fig. 33. NEST OF THE WESTERN FLYCATCHER

feeding. As the bird fed we could just see tiny bills above the nest. There seemed to be three of them.

For the next eight minutes the female fed, making three trips and resting on the edge of the nest a short time. Then the male fed three times, then for thirteen minutes both birds fed in all seven times, then they seemed to divide the labor again, the female feeding for a time, then the male doing all the feeding. Perhaps I am wrong in this conclusion, but in the three hours and forty minutes that we watched them, I came to the conclusion that it was their way to take turn about in the feeding. Sometimes the watching bird would be seen perched in a tree not far away; at other times it was out of sight. During the three hours and forty minutes the young were fed sixty-three times, the female feeding thirty-three times to the male's thirty, the shortest interval being one minute, the longest ten and one-half minutes.

At 9:30 the sun was shining on the nest when the female came to feed, and we could see long necks, dark fuzzy heads and broad yellow bills. After feeding the mother slipped onto the nest, resting lightly above two of the birds, the third one showing on our side. Presently the mother raised higher up and partly spread her wings. For three minutes she thus shielded the nestlings, when the male came to feed and she flew away. The male did not stay this time, but a few minutes later when he came to feed, he rested on the edge of the nest and finally slipped onto it, where he stayed ten and one-half minutes. In my mind there is little doubt but that the male helps brood the eggs, for never have I seen a bird that did not share the brooding take the nest as this one did.

The common call of this pair of birds, one that I heard on the upward trip and all about our camp, was a "pe-wit" or "see-rip". This was given by the female quite frequently before and after feeding. The male used it in the same way but not so frequently. Only once did I hear any other note and then it was only a little varied.

The food brought seemed to be large winged insects to a great extent. Sometimes they were so large as to make several feedings. The female often foraged quite near the nest in a damp place under the bank. Both birds sat about on limbs not far from us and seemed not to mind our presence.

I made only one other trip to the nest and then I took my camera. The nest was so far away and the light so uncertain that not very satisfactory results were obtained. However, the camera shows the location of the nest. For the rest one must use the imagination.

MY AVIAN VISITORS: NOTES FROM SOUTH DAKOTA

By H. TULLSEN

The bird's point of view differs scarcely at all from our own in the essentials of life: Protection from enemies, the preservation of the family, a sheltered home, congenial environment, abundant food, and pure water—these natural rights, the birds, like man, are ever seeking.—NELTJE BLANCHAN.

THE conditions of existence to which animals are normally exposed are not so tranquil and unexacting that such creatures are rendered unwilling to take occasional advantage of opportunities to try other and different environments. This we sometimes see illustrated in the fact that birds, in order to obtain food in greater abundance, shelter from cold, or security against the attacks of their natural foes, at times will temporarily or permanently forsake their wild haunts and seek the environs of the habitations of men. Of course it is to be admitted that our feathered friends frequently visit our dooryards and gardens for mere variety's sake, or in obedience to the promptings of curiosity, or, perchance, owing to a spirit of daring; but the fact remains that necessity and want, or at least a hope of *sooner* finding the means of appeasing hunger than under ordinary circumstances, are oftener the agents that move such callers to come.

In southwestern South Dakota, on the Pine Ridge Indian reservation, I had ample opportunity to observe the behavior of farmyard and dooryard bird-visitors of both the main categories named above, viz., seekers of food and shelter, on the

one hand, and idle loafers or sight-seers, on the other. In the winter of 1902-1903, and that of 1903-1904, I kept a stack of prairie-hay, another of oat-fodder, and a third of squawcorn stalks with the ears left on. These stacks proved a great attraction to the birds. They stood a little distance from the dwelling house, on the bleak plain, and high above the flood-plain of Medicine Root Creek, which lies two-score rods to the west. To the east are the treeless higher hills, and to the south and southeast rise other hills upon which grow groups of pines (*Pinus ponderosa scopulorum*). The creek-plain, which lies far below the general surface of the adjacent country, is densely covered with a growth of deciduous trees and shrubs.

At all times to the dooryard came the Magpies (*Pica pica hudsonia*). Mischievous and thievish though they are, I know of no other birds among all my acquaintances more attractive and charming than they. Whilst watching their antics and hearkening to their friendly, conversational chattering, one can almost forget that at some time or other the very birds that he is observing may have killed and eaten by inches the saddle-galled pony of a Siouan "brave." Each winter, among the sixteen or twenty Pies that made daily visits to search for edible matter among such refuse as had been thrown out, came one or more that had parted with their tail-feathers. These appendages, the Indians informed me, had been left in some steel trap set for small four-footed game. The tailless individuals, however, as it seemed to me, were about as well off as were those that still were "whole"; for when the latter leave the sheltered groves that border the water-courses, and ascend to the higher ground, I have noticed that they are considerably inconvenienced, in the high winds, by having such large caudal appendages. In the mornings, when one is trying to muster self-command enough to persuade himself to rise, outside the window can be heard the chattering and scolding of a dozen or more of these birds. Only at the time of courtship and nest-building are their visits to the doorstep comparatively rare. Curiosity certainly is an element in their mental make-up. On one occasion I saw sixteen of them gathered round a domestic cat, all sitting very still, intently watching the feline, and jumping quickly and nimbly back at his slightest movement. Nevertheless, as a rule, they seemed to have little, if any, fear of this cat. He and they were often to be seen together culling edibles from a box of garbage.

At another time, however, and in another place, the cat in the case did not fare so well. One morning at Grass Creek, South Dakota, I was awakened by the excited shrieking and chattering of Magpies. On going to the window I saw an old house cat in a couchant attitude, about two rods from the door of the cottage. His tail was coiled closely about his feet—for safe keeping, as developments presently showed; and he appeared ill at ease as he watched a pair of Pies that were hopping about him, their dark eyes glistening with deviltry. At length the cat rose and started to walk toward the doorstep. Immediately, first one bird and then the other hopped quickly forward and nipped the end of Tom's tail with its bill. All that the cat did to show his resentment was to turn half round with a protesting "meow!", after which he squatted down again. When he arose once more the whole performance was repeated, and it was only when the feline reached the stoop that he was suffered to rest in peace. It is said that jack rabbits are sometimes harrassed by these avian mischief-makers in like manner.

Often one (and, I think, always the same) individual of the flock of Magpies at Medicine Root Valley would reply to a teasing chatter uttered by a person in the house, and whilst so doing would approach very near to the door or window whence came the challenge. Magpies when tamed may be taught to articulate a

few words. A gentleman who has spent much time among the Indians informs me that on one occasion when he was passing a modern Siouan home a Magpie on the haystack distinctly uttered the words "How, kola!"—which, being interpreted, is "Howdy-do, friend!" I myself have heard a tame crow "talk Indian."

A young Magpie that I took from a nest in this vicinity and brought to Illinois, became very much of a pet. It was allowed the freedom of the town, and took a legitimate advantage of its liberty, always coming home to roost and feed. This bird suffered an untimely death by drowning in a barrel of water, and his taking-off was the cause of much lamentation in the household to which he had been attached for nearly a year.

Magpies soon learn to distinguish the sound uttered by a person when calling the chickens to be fed, and are apt to appear suddenly and unbidden to partake of the meal. More than this, they are known to have a liking for the flesh of the very young chicks themselves, and it is therefore unsafe to allow a hen with a brood less than fifteen days old to range far where there are Magpies in the neighborhood.

When the breeding season commences the Pies keep close in the thick tree-growth along the creek where they build their massive nests; and now they come to us in pairs occasionally instead of in a flock as at all other periods. At this season they utter a note not heard at other times,—a soft, tender call, hard to describe or imitate. It has often been said that their nests are "as large as bushel-baskets," but structures much larger than this are common. Where I observed them, nests with eggs were most numerous in the month of May. Two nests which I examined in 1903 were about ten feet from the ground. On May 7, 1904, I found a nest saddled upon buffalo-berry saplings, and so low that I had to look down instead of to climb up, in order to peer into it. On the date mentioned it contained two eggs, and an additional one was laid each day thereafter until the clutch, numbering seven eggs, was complete. A short time afterward this nest was robbed by Indians. Among these people, by the way, sympathy for animals is an unknown virtue, as to some extent is the case among small boys, who, like savages, sometimes lack certain of the nobler instincts, and, as one consequence, are often responsible for much suffering among animals.

Nearly every bird has its own manner of flight, and although it be far off where color and form alike are indistinguishable, yet the student of ornithology ascertains from its way of progression through the air to what species a given bird may belong. The peculiar wavy flight of that small bird tells him of a goldfinch; the similar, but heavier, flight of the woodpecker is known to him; like an arrow the Mourning Dove shoots by, while perchance the whistling of its wings may be heard; sailing with the clouds, high overhead, are the nighthawks and swallows; and in the near horizon that lazily flying creature with the tail of a comet is a Magpie. Sometimes I have conjectured that that strange bird the Archaeopteryx, bore a similar general appearance as he flew through the pleasant air in that far-off Jurassic day.

To my fodder-stacks, in early spring, came the Western Meadowlark (*Sturnella neglecta*). This is a bird of marked individuality; it differs from the Eastern Meadowlark in appearance, and its highly variable melody is quite unlike the song of its congener. On two occasions when passing through the sand-hills, a few miles to the south, while the songs of meadowlarks filled the air, I could easily distinguish the notes of the eastern birds, one or two of which I now had the pleasure of seeing for the first time in that country among the multitudes of the

other species. Afterwards, however, along Lake Creek, about forty miles to the southeast of my station, in a marshy valley about three miles wide, I found that the Eastern Meadowlarks were very abundant. In this valley the western birds were very few, but on entering the low sand-hills that bordered the valley on the south, or the somewhat higher limestone hills that lay to the north, we came into a region where this species alone was to be seen and heard; positively never a feather of the eastern bird was ever met with out of the valley.

Persons having no special ornithological bent, but with a desire to know something of wild life in general, on coming to South Dakota from the east, have asked me with reference to the western lark, "What is this bird hereabouts that looks like our Eastern Meadowlark?" This inquiry indicates that the differences between the two birds are sufficiently great to enable those that make no pretense whatever of being versed in bird-lore to perceive readily that marked dissimilarities exist. And to the great majority, the bird of the east and the bird of the west will always be two entirely different birds, notwithstanding the fact that the American Ornithologists' Union used to consider *neglecta* to be a mere subspecies, or varietal form, of *magna*.

In the year 1902 my date for the arrival of the western meadowlark was March 22. The next day the weather turned cold and blustery, and so it continued for several days; but the birds became immediately common. In 1903, when the spring was wintry and uninviting, I saw the first individual of this species on March 26. The Indians, however, reported having seen some of these birds on the preceding day, near the head of Medicine Root Creek, a few miles to the southward. By March 28 they were present in full force.

The spring of 1904 was warm and dry, and on March 3 I saw a lone meadowlark near my stacks. But again the irrepressible red men put forward claims of priority; they insisted that they had seen their birds some few days before. On March 5 I saw several individuals, but the species did not become abundant until about two weeks had elapsed.

It was remarked that their song is highly variable, and indeed I am almost inclined to state that no two individuals sing exactly alike. This is an illustration of the truth pointed out by Darwin that "secondary sexual characters are eminently liable to vary, both with animals in a state of nature, and under domestication." Such "contingencies are highly favorable to sexual selection." And likewise, without doubt, this extreme variability of the melody is one circumstance that contributes toward rendering it so very pleasing to our ears, for the meadowlark is one of the most admired of Dakota songsters. He runs in the yard with the hens, and ever and anon he perches upon a fence-post or shed to pour forth his melody, which no more admits of satisfactory description than does any other bird-lay. That courtship song, less often heard, which is caroled forth by the male whilst on the wing, is one of the most beautiful sounds in all nature.

The Oglala Sioux imagine that the Western Meadowlark talks to them in their own language. Rendered into English, some of the phrases which the ordinary song is fancied to resemble are, "My friend, I like the calf," "Sister-in-law, comb my hair," and "The lightening will kill you."

The last stragglers of the migrating hosts of meadowlarks seen in the autumn of 1901, were two birds noted on October 17. In 1903, September 12 brought snow, and following came about a week of wintry weather; thereafter the autumn was pleasant enough. My last date that year for the meadowlark was October 23, when a single bird was recorded.

TO THE MEADOWLARK

O, blithesome bird,
Thy voice is heard
While yet the Frost-king rules the land,
And e'en when flowers,
'Mid fragrant showers,
Are waked to life by Springtime's wand.

And yet so sweet,
Thy song is meet
To thrill the pulses of the gods,
When on a gay
Autumnal day
'Thou singest 'mid the golden-rods.

That sound so clear
From far and near—
That sound so common, yet so rare—
That joyous flood,
Euterpe's blood—
Pours out to drown the fiends of care.

For ages long
That selfsame song
Unchanged has welcomed each new day;
Would Faith and Love,
All else above,
Were changeless as thy wondrous lay!

That beautiful relative of the meadowlark, the Red-winged Blackbird (*Agelaius phoeniceus*), was not a common visitor to the barnyard at Medicine Root. He belongs to the low-lying meadows and the marshes, and in order to ascertain with any accuracy his times of arrival and departure, we must be on hand at such places in spring and autumn. On March 11, 1904, however, I saw a Red-wing at my haystack. On April 20 of the same year a male Yellow-head (*Xanthocephalus xanthocephalus*) also paid me a visit. Either of these two birds is not common thereabouts. But along the sluggish streams and among the swampy meadows that abound in many regions of that country, both the Red-wings and the Yellow-heads are very abundant. At Grass Creek, about forty miles westward, I found the Red-wings in large numbers nesting in the wolfberry thickets throughout the month of June.

Among the afore-mentioned pines dwell the Pinyon Jays, or Blue Crows (*Cyanocephalus cyanocephalus*). "Pinebird" is the vernacular name, and not a bad one, either. These, as a rule, are birds of the wilds, which at most seasons fly about in sizable flocks, uttering weird cries, half caw, half mew. Once in a while a flock will alight near an Indian tepee, investigate for a moment, then fly away. They are fond of hovering along the high bluffs that border the creeks, and peering into the cracks and crevices thereof. While thus employed, I presume that they are in search of insects and their larvæ. At No Flesh Creek, not far from my station, I on one occasion saw a Clarke Crow (*Nucifraga columbiana*) in company with a troop of them while thus engaged. I heard his squawk, or chatter, above the screams of the jays, and was thus led to discover him. This

was the only representative of the species that I ever saw thereabouts. In autumn the Pinyon Jays were most attentive to a small field of squaw corn near the brook, and at the base of a pine-clad bluff that was a favorite resort of these birds. They attacked the grain while the stalks were standing, as well as when in the shock; and in this work they were ably assisted by Blue Jays and Red-headed Woodpeckers.

As was implied, Pinyon Jays are not generally to be classed as loafers about outbuildings, haystacks, and barnyards. But in February of the year 1904, one lone individual stayed about my buildings for several days to hunt for grains of corn and oats. Sometimes the kernels of corn were swallowed entire, and at other times he fixed them in crevices of posts and rails, and cracked them with blows from his beak, in the manner in which his cousin, the Blue Jay, opens the hazelnuts stolen by him from some shed-roof where they have been put to dry. I was able to approach within two or three yards of this bird, whose kind are always so shy—so near, in fact, that I could easily distinguish the whitish feathers of his throat. His first appearance occurred immediately following a light fall of snow; when this had melted away he disappeared for a few days. On the morning of February 24, however, a light mantle of snow again covered the surface of the earth, and my acquaintance came flying from the pines, and alighted on a post near me. Soon I saw him working away at an ear of corn, and swallowing the unbroken kernels as they were detached. Each time did he come alone—never brought a friend to partake of the abundance of his fare. Perhaps he thought it not worth while to do so, for he soon tired of his semi-domestication, and came no more.

It seems meet that these birds should dwell in a region so suggestive of ancient days. Dimly in the northwest appear the Black Hills, which were upheaved in a nameless day between Cretaceous and Miocene time. The Bad Lands, turreted and sculptured by the tireless forces of Nature through a lavish waste of years, and yielding the remains of strange creatures that lived and loved long æons since—these lie to the northward. On the ancient buttes and bluffs, the relics and ruins of Miocene deposits, flourish the pines, which belong to a group of seed-bearing plants the heyday of whose existence was in the Triassic age, at least fourteen million years ago. And among these trees rove the Pinebirds, themselves illustrative of things that are past. For they are a link between the crows and the true jays—a combination of both—and resemble some ancient bird that was the common ancestor of the two subfamilies.

In the region of the Great Plains the Robins (*Planesticus migratorius*) are not always the familiar dooryard birds with which we are so well acquainted in the east, and elsewhere. If, in the locality of which I write, your house is situated near the creek, then assuredly you will have these birds always with you at the proper times. But, living on a treeless hill, about all that you will hear of them comes wafted from the groves below, or their soft screech may be heard as they pass overhead. Occasionally, one or two will visit your barnyard or lawn in quest of something new in the way of diet. While the majority of them migrate, a few Robins remain in this region throughout open winters.

Tree Sparrows (*Spizella monticola*) were familiar visitants to my barnyard in winter and spring. They spent much time near the forage-stores, where now and then a Snowbird (*Junco hiemalis*, etc.) was to be seen among them. These latter are more shy than the sparrows. On the flat, weed-covered valley of Lake Creek, Tree Sparrows were more abundant than here, while the Juncos were less so. In the spring of 1908, at Lake Creek, among the hordes of sparrows, I saw a solitary

Snowbird which remained with them in the vicinity of the dooryard for about two weeks before he disappeared.

There is something strange and interesting in this fact of the associating in flocks of different species of more or less closely-related birds. What do the two or more kinds think of one another? Ofttimes I watched this particular Snowbird as he hopped about among the sparrows in search of food. To all appearances he was treated as one that had been "adopted into the tribe."

Western Lark Sparrows (*Chondestes grammacus strigatus*) in 1904, first made their appearance on April 30, and became common at once. During many hours each day they were much in evidence about the dooryards in goodly flocks, especially where grass or other low vegetation was to be found, and there, as in other regions of the country, they displayed a partiality for the immediate vicinity of fences, or similar structures. On cool and drizzly days they sometimes collect in considerable assemblages as if to seek good cheer in large numbers. At Grass Creek, on such a day, in June, 1905, I counted forty-six of these sparrows perched on a barbed-wire fence.

The Lark Sparrow is imposed upon very frequently by that prince of vagabonds, the Cowbird. On June 28, 1905, I found a sparrow's nest on the east slope of a steep hill, and near an elm tree at its foot. The nest contained five eggs, three of which belonged to the owner of it, and the other two to Cowbirds! On July 8, I found that the nest had been abandoned, and that there was only one Lark Sparrow egg remaining therein, and none whatever belonging to the Cowbirds. What had removed the eggs that were missing and caused the sparrows to desert the remaining ones, I know not. There are many mysterious disappearances continually occurring to puzzle and sadden the student of nature.

The above mentioned nest was a very neat affair made of grass, lined with root-fibers, and placed in a shallow depression in the soil. A tuft of coarse grass bent over it from above; and another was growing on its lower, or downhill, side.

The song of the Lark Sparrow, which may be heard throughout the spring and summer, is highly pleasing. The bird usually arrives from the south the first week in May and becomes common immediately.

If Harris Sparrows (*Zonotrichia querula*) ever visited my place of residence at Medicine Root it was never my good fortune to meet with any of them. But at Lake Creek, in a flat and almost treeless region, three of them, two males and a female, stayed about my stable for two weeks or more in late April and early May, 1908. The ordinary call note of Harris Sparrow brings to mind the melancholy sound made by an unoiled hinge that supports a door or gate swinging to and fro in the wind. When these birds were perched on the fence-posts or buildings in company with a number of English Sparrows it was difficult to distinguish which birds were which unless one approached very near to them, as the head and throat markings of the two birds are somewhat similar.

Very seldom did the Lark Bunting (*Calamospiza melanocorys*) visit my dooryard; however, when riding over the prairies one is sure often to meet with these birds. In 1904 I saw two males on May 14, and a large flock, consisting of about equal numbers of the sexes, on May 19; from this latter date they were common. But marshland and meadows are their proper habitat, and to such places we must hie in order to find them in abundance. Along Lake Creek they appear when Maia, the goddess of the plains, first makes her magic influence felt, and they become common about May 11; hence their vernal hegira in 1904 was somewhat delayed. In the hill country where the Bobolink is seldom seen the Buntings are often called "Bobolinks," because of the similarity in the coloration of the breed-

ing plumage that obtains between the male Robert of Lincoln and the male Bunting. Every ranchman in the flat country can tell you how the "blackbird with the white wings," as he calls the Lark Bunting, soars and sings ecstatically above the spot where the female bird is concealed in the grass.

In the year 1904, on April 13, there came to the stacks a Bronzed Grackle (*Quiscalus quiscula aneus*); on April 27 I saw a small flock of Brewer Blackbirds (*Euphagus cyanocephalus*) at the same place, and thence during the spring both kinds passed much time in the barnyard, often commingling in flocks. Unobserved by the birds, I often watched them from the stable while they devoured grains of oats that had shelled out upon the ground. Never is contentment more plainly expressed than in the actions of a flock of blackbirds upon their feeding-ground, and to contemplate them is good for the soul. The "cre-eak" of the "rusty hinge" is full of good cheer, as also is the "chuck" of the lesser bird.

I have whiled away much time in watching the courtship of the Brewer Blackbird. Once, while I was at work in the garden, several female blackbirds made their appearance, being soon joined by a number of males. These latter, each, for the most part, having selected his mate, proceeded to make love—ruffled their feathers and expanded their tails and wings, at the same time uttering a sound that partook equally of a rattle and a ring. Sometimes the females replied, but their antics and voices were far feebler than those of their lovers; apparently they were much more interested in searching for larvæ than in the doings of the males. As they walked about over the freshly turned earth, each favored one was closely attended by her suitor. Bachelor and maiden birds came and went, fancy free, but in every instance these had the good taste not to molest the love-makers. Thus it went on until I grew tired of watching them. He who has noted the vast amount of time and energy consumed by birds—and other animals—in their courtship must needs admit the reasonableness of the theory of sexual selection.

Comes the springtime with its hosts of flying insects, and darting from the fence posts in pursuit thereof are soon seen the remarkable tyrant flycatcher. About my Dakota home both the common Kingbird (*Tyrannus tyrannus*) and the Arkansas Flycatcher (*Tyrannus verticalis*) were often met with. In the spring of 1902 the Kingbird appeared on May 23, and became common immediately. In 1903, several of the birds were seen on May 15, and the species was in evidence from that date. In 1904, the first Kingbird as recorded by me was noted on May 8, but the birds, though one or more were seen nearly every day from the date of their first appearance, did not show their normal abundance until May 20. My meager records touching these birds seem to indicate that the Arkansas Flycatchers arrive in that region a few days in advance of the Kingbirds, that they are not so sensitive to cold as their congeners, and that some of them, at least, tarry with us much later in autumn than the common species.

The habits of these two tyrants, of necessity, are much the same, but their appearance is dissimilar. I used often to pass an old elm with a large dead limb at its summit, and many times I saw perched thereon, side by side, a single representative of either species. They often "hunt" together, and appear to be on good terms always, as though recognizing their kinship.

Because he gave them wire fences to serve as lines of perches wherefrom to sally out upon their insect prey, these birds no doubt owe much to man. One would think, too, that they would prefer the posts as points of observation, as these most resemble the dead limbs and snags of trees that nature first gave them for this purpose, but as a rule they perch upon the wires instead.

After cold and prolonged rains in summer when the insects on which they

feed are not flying well, I have noticed both these flycatchers winging their way round and round over meadows and garden patches in their efforts to stir up the wherewith for a meal. While thus engaged they remind me of the swallows that often skim about among them, though these, of course, are much more graceful in their gliding flight than are the flycatchers.

I stated that the two flycatchers are friendly to each other, but nevertheless there is sometimes a spirited rivalry between them. Once at Grass Creek, South Dakota, I saw a common Kingbird and an Arkansas Flycatcher contending for the possession of a large moth that was doing its utmost to escape them by a zigzag flight. Both birds would dash at the insect and then at each other. The Kingbird at length was successful in securing the quarry, and thereupon alighted upon a wire fence with his prey, while the other bird flew away. The victor was proceeding to pluck the wings off the unfortunate moth, when it got away, and fluttered down into some long grass. The bird hovered over the place where it had disappeared, uttering a piercing "peet, peet"; but becoming alarmed at an ill-timed movement on my part he gave up the search and flew to a clump of trees hard by.

When all was quiet, in the proper season, generally speaking, from mid-April to late in September or after, stragglers often being encountered much beyond the average autumn limit, sometimes the Mourning Doves came timidly into the yard. Their preference, however, is for the dusty trails and the old fields abandoned to waste and weeds by the Indians. At Grass Creek I found them nesting in large numbers throughout the month of June, 1905. None of the nests that I found were situated upon the ground.

The Horned Larks (probably at certain times including two or more subspecies or races) during snowstorms when the problem of existence for them must be complex, congregate where the ground has been swept bare by the wind in its eddying round buildings. At this time of the year the Sioux Indians sometimes shoot them with pointless arrows and use them for food, while in far off Utah the Utes catch them by means of horse-hair snares. Preceding storms or other marked meteorological changes, they are wont to gather together in much larger flocks than ordinarily, and upon such occasions their restless and excited manner of twittering and scurrying is certain to attract attention. In May and June the young birds, unable to fly well or at all, are frequently crushed by the feet of horses and cattle, or the wheels of vehicles. Once, in winter, I witnessed the attempts of a pair of hungry coyotes to capture Horned Larks by stalking them. But they were unsuccessful, as the birds were on their guard, as they must needs always be, and made short flights whenever the canines drew uncomfortably near.

The Yellow-billed Cuckoo (*Coccyzus americanus*) often arrives in those parts as early as May 22. Ever since I first came to know this bird in Illinois, many years ago, as the "rain-crow," he has greatly interested and delighted me. In 1905, it was on May 23 that I saw the first Cuckoo of the season at Grass Creek, South Dakota. He was flitting silently about among the trees that stood at the foot of a low bluff when first I spied him. Leaving him sitting on a willow branch, I hurried to the house, twenty rods distant or so, to procure my field-glasses. When I came back, there he sat on the selfsame branch and paid but little heed to my movements. I viewed him for some time, and as I approached a little too near, according to his view-point, he merely hopped to another perch a few feet away. There is something of Old World mystery, somewhat monkish and medieval, about this bird, with his sidling, shy behavior, his exclusive ways. I walked down the creek, forty rods or so, and returned in about a quarter of an hour. Still he sat there, lost in reverie, his back to the sun and wind. And thus I left him.

English Sparrows (*Passer domesticus*) in spite of their commonness, their rank hoodlumism, their ceaseless clamor, and their strenuous antipathy to the presence of more welcome birds—in their relation to the economy of nature afford a subject well worthy of study. During the winter of 1902-1903 there were none of these birds about my premises. In 1903 a flock suddenly appeared late in October, and spent the remainder of the fall and all winter with me. Often I met with some of the members of this flock along the creek among the trees, where their impudent chirps seemed strangely and strongly incongruous. "When we reflect upon their prompt and confident manner of taking possession of new territory, as here illustrated, we can easily understand how it is that these birds, since the fifties, have been enabled to overrun our country so largely. We can see that although the fittest in nature must survive, yet the fittest of nature's plan are not always those that appeal to our sympathies as being the best. The bluebird is continually being driven from the neighborhood of our houses by the noisy and bellicose sparrows. Now, what being in the realm of nature, in a higher sense, is "fitter" to enjoy the best in life than is that emblem of innocence and purity, that "bit of blue sky," the bluebird? Yet the fittest of the biologist is the organism that is able to cope best with its surroundings; and where can we find a better example of such a being than is the English Sparrow? How and why, it has succeeded so well, is thus pointed out by Coues: "This species, of all birds, naturally attaches itself most closely to man, and easily modifies its habits to suit such artificial surroundings; this ready yielding to conditions of environment, and profiting by them, makes it one of the creatures best fitted to survive in the struggle for existence under whatever conditions man may afford or enforce; hence it wins in every competition with native birds, and in this country has as yet developed no counter-acting influences to restore a disturbed balance of forces, nor any check whatever upon its limitless increase."

I do not recall ever having seen a House Wren (*Troglodytes aedon parkmani*) at my stamping ground on Medicine Root, but at Grass Creek they were very abundant. At the former station the number of large trees is not great, while at the latter place there are many good-sized willows and elms having numerous hollows and knot-holes, and perhaps it is for this reason that there are innumerable wrens at Grass Creek, but I do not know. They become common about the second week in May.

"Music hath charms" is a saying trite but true. The charm about the song of our Dakota wren, however, resides not altogether in the music of it. When the ditty falls upon our ears the associative faculties straightway bring up mental pictures of other scenes and sounds. In the wilds of Dakota, with Indians roaming here and there, with the Bad Lands blazing in the sun, and with a strange sky overhead, close your eyes and hearken to the singing of the wren. Immediately fond remembrance brings back the surroundings of your boyhood days in Illinois, the cool, moist groves of maples, and the little House Wren pausing to warble joyously during the intervals of its labor of collecting larvæ for the hungry brood.

Brown Thrashers (*Toxostoma rufum*) were more numerous at Grass Creek than at Medicine Root. During the few years throughout which I studied them in Dakota, they became common at any time from May 3 to May 17, and after mid-September they were seen no more. A pair of thrashers that had built their nest in a bush not far from the dwelling house used to visit my cord-wood pile for borers to feed to their nestlings. Once when I approached the nest, the mother bird, who was on the point of giving one of these larvæ to her young, swallowed the insect herself in order that she might the better scold me. I estimated that

the thrashers at Grass Creek were more numerous in 1906 than during the previous year.

The first occasion upon which I had the pleasure of observing the Snowflake (*Plectrophenax nivalis*) in that region was in the fall of 1903. I was standing on the summit of a lofty hill when on a cairn I saw the bird, for there was but one. I approached very near, and thus was enabled to study his coloration and general make-up, and to determine his kind. On my drawing too close, however, he would fly away with a "pur-r-r," but always came back to the self-same cairn.

In winter the Snowflakes fly in flocks before the traveler's horses as the Horned Larks do, except that in taking flight they "rise as one man." They seldom come to the vicinity of dwellings, but in February, 1904, I saw one lone bird of this species in my garden plot, where I had thrown a quantity of kitchen refuse on the snow. When the hens appeared the bird uttered a scolding note and flew to a post. I have no record of the comings and goings of the Snowflake.

In the middle of May—a time beloved of a myriad of birds—the Western Yellowthroat (*Geothlypis trichas occidentalis*) arrives in southwestern South Dakota. If your home is on a table-land, however, you may count upon seeing or hearing but little of this the most familiar of the warblers. But on Lake Creek, an indirect tributary of Big White River, the Yellowthroats were present by the hundreds. Here grow clumps and clumps of dwarf willows and bastard indigo, traveling over the miry meadows, or seeming to travel, for continuity suggests motion, and on their arrival at the brink of the creek approaching as near the water's edge as they can secure a foothold, or roothold, rather, and then extending their wand-like branches out over the surface of the stream as far as these will reach. Such places are a paradise for the yellowthroat. From the time of his arrival in the springtime, through all the summer, you can hear his joyous "witchety, witchety, witchety," from far and near. And he does not fear to leave the marshes, either. There are dozens of his kind among the weeds that flourish luxuriantly upon the flat meadows reclaimed by Mother Nature from ancient marsh-land. And in the miniature herbaceous forests about your very doors you will find the bird and his mate in pursuit of their insect quarry.

The Barn and the Cliff Swallows (*Hirundo erythrogastra* and *Petrochelidon lunifrons*, respectively), in regions where the Bad Land formations and the limestone bluffs occur, find sites in plenty that are suitable for nidification purposes. But in the marsh and sand-hill country the former are obliged to build their nests in sheds, and the latter to construct theirs under the eaves of buildings. At Lake Creek, despite all my efforts to prevent their doing so, the English Sparrows enlarged the openings to the cliff swallows' nests and evicted the rightful house-holders, after which they themselves took up their abode therein. Barn Swallows depart on September 26, or before, but as late as September 15, in 1906, I found in a nest within a shed, three young birds of this species that were just able to fly when I routed them therefrom. I saw no old birds about at the time, and what afterwards befell the young ones, I did not learn.

In summer, when one is traveling over the prairies, especially during a rain, barn swallows frequently circle about close to the horses in pursuit of the flies that accompany these animals, and on more than one occasion I have seen the birds dart after specks of flying mud that they mistook for insects on the wing. At a given date in spring or fall, a person may conclude that there are no swallows about, and then, when traveling over the hill-country, suddenly come upon a number of them circling round in some sequestered swale or valley. These birds seem to practise frequently this trick of going off by themselves into sunny nooks, and

hence it is not so very strange that we oftentimes hear of folk who believe that swallows hibernate in mud at the bottom of ponds, and that on pleasant days the sun warms them into life and renewed activity.

Only once was the Purple Martin seen by me in that country. This was on June 11, 1904, when a pair of these birds, accompanied by some Cliff Swallows that were always hanging around, stopped to rest for a while upon the clothesline in my dooryard at Medicine Root. To my regret, they moved on and were seen no more.

Other rare bird occurrences came to my notice on Pine Ridge reservation. I saw a male Crimson-headed Tanager (*Piranga ludoviciana*) near Grass Creek on June 3, 1905. Three Western Blue Grosbeaks (*Guiraca caerulea lazula*), all males, tarried about my station in the valley of that creek for several days late in May of the same year. In that vicinity, also, a White-winged Crossbill was seen on a single occasion the following winter. A flock of about twenty common Redpoll Linnets (*Acanthis linaria*) alighted on a tree at Medicine Root in February, 1904. They were most ridiculously tame, and did not take flight until I, whose marksmanship is certainly nothing to boast of, had approached so near as to be able to decapitate one of the birds with a bullet from a twenty-two caliber rifle. The linnets then flew away, uttering a note somewhat resembling that of the American Goldfinch.

Interesting though they are, cases of raræ aves that are seen once or a few times in a particular region as mere stragglers, do not compare in importance with instances of the gradual increase in numbers of uncommon birds throughout a given territory. Take the Black-throated Bunting, or Dickcissel (*Spiza americana*), for example. This is a bird whose kind haunt every hedge-row in Illinois. When a boy I knew the bird well, and early learned his name through the medium of one of a set of picture-cards advertising a particular brand of saleratus! On one of these cards was the likeness of the dickcissel, reproduced from an illustration in some standard book on ornithology. But in his habitat in Illinois, he was not, I must admit, of especial interest to me. This no doubt was because he there appeared a fixed feature of the ordinary, unchangeable run of Nature's everyday affairs. In that district of Dakota where I so long sojourned, however, I saw the bird in a different character—as soon as I saw him there at all! For he exemplified the gradual advance of a species into territory aforesaid unoccupied by it.

The points where I was stationed in South Dakota were all on the Pine Ridge Indian reservation, a tract of country about one hundred miles long and sixty miles wide. During the almost three years, from October, 1901, to July, 1904, when I was located at Medicine Root Creek, I traveled about, as usual, over the reservation a great deal. Nevertheless, on no occasion throughout this period did I see, or hear of, a Black-throated Bunting. I left the reservation in July, 1904, and returned in April, 1905, taking up my abode on Grass Creek, about forty miles west of my former station. Here, on July 9, 1905, among some rose bushes in a branch of the main creek-valley, I saw a male Black-throated Bunting. This, the first of the species recorded by me up to that time, was also the only one seen that season. But the next summer, that of 1906, I saw, beginning June 13, a number of these birds on Wounded Knee creek, five or six miles from the spot where the solitary bunting of 1905 was found. In July, 1907, when I crossed Wounded Knee, there were some of the birds at the same place, and, I estimated, in increased numbers. I visited Medicine Root, also, when on the same trip, and not far from the mouth of that stream, on a level tract, I perceived a number of buntings. At Lake Creek, in 1907, on June 13—mark the date!—they suddenly appeared in considerable force, and became immediately common. The character of the bird-music

of that valley was thus abruptly changed, for amid the songs of the Meadowlarks, Red-wings, Lark Buntings, and Bobolinks, the "chip, chip, chee! chee! chee!" of the Black-throats was very noticeable. About two weeks after the above date I found a bunting's nest containing four eggs. The next year, also, they came to Lake Creek in June, and without any doubt, too, they must have returned to their haunts at the other points where I had found them on previous occasions. I think that these various records are sufficient to establish for the Black-throated Bunting, or Dickcissel, the right to be called a member of the avifauna of Pine Ridge reservation.

Were it not for the parasitic habits of the Cowbird (*Molothrus ater*: literally, "black vagabond," an appropriate name), one might doubtless take a liking to him. It is a well-known fact that the female cowbirds clandestinely deposit their eggs in the nests of other, and usually smaller, kinds of birds, and that in most instances the young Cowbirds who in due time arrive are well-cared for by the dupes of foster parents, generally to the neglect of their legitimate offspring. Cowbirds are often seen following grazing cattle and horses, and engaged in capturing the insects that are attracted to these animals, whence comes the common name of the bird. But though they accompany roving cattle and were formerly followers of the herds of buffaloes, as the "old timers" tell us, I have seen them follow the plow also. One spring, when a tract of virgin prairie was being broken up, a flock of about twenty Cowbirds, male and female, were on hand, and devoured great numbers of the grubs of May-beetles which abounded among the grass roots.

Where I first knew them in Illinois, northwest of the state center, the Cowbirds arrived early in April, as a rule. In Dakota they appeared from three to four weeks later than this, and departed some time before the middle of October. In the summers of 1907 and 1908, respectively, I observed that they were very abundant throughout the lowlands of Lake Creek and in adjacent regions.

Through sight or sound I was continually apprised of the proximity of many birds that seldom, or never, actually stopped on the grounds. In the evenings the Nighthawks (*Chordeiles virginianus*) sailed overhead, and their sharp and penetrating "spe-eak!" or, at times, their startling "boom!" could be heard on every hand. These birds attain their normal abundance in those parts from late in May to June 2. In 1904, they suddenly appeared in large numbers over many square miles of territory on May 21, and were frequent from that date. By mid-September they are off for the south.

Frequently, and especially in the evenings during falling or threatening weather, the shrill vociferations of the Killdeers (*Oxyechus vociferus*) resound on all sides. Indeed, when an area of low barometer is upon us, presaging storms, I believe that this plover can "feel it in his bones" as early and unmistakably as can the most rheumatic of old men. These attractive birds usually arrive late in March and are common on April 1. Thus it was, also, when I observed them in northeastern Utah in the spring of 1901.

Sometimes from the top of a pine a Chewink (*Pipilo maculatus arcticus*) gave utterance to his song, and when the wind was favorable the ditty could plainly be heard at the house. The Chewinks are here in numbers by May 6, or sooner, and it is only when the first third, or sometimes half, of October is gone, that they no longer people the groves and copses. I have seen stragglers at various times throughout the winter, however, and have come to the conclusion that when suitable shelter is at hand and the cold season not too severe, individual representatives of the species may occasionally remain during the entire year in many localities.

Within the dank woodland in the abrupt Medicine Root valley, and at no other

point where I resided in the Dakota country, the crescendo chant of the Oven-bird (*Seiurus aurocapillus*) was heard in spring and summer, and on two occasions I found the nest of this species.

When the night falls, and near the water the frogs sing and croak; when the slight breezes cause the pines to sigh; when, like ghouls, the coyotes yelp and wail amid the moon-kissed hills, whereon, exposed to sunshine and to rain, rest the rude coffins of the Sioux—then the sound that, above all others, arrests the attention, is the succession of curious utterances of the Long-tailed Chats (*Icteria virens longicauda*) in the undergrowth along the creek. Day and night for a considerable period after the middle of May, I could hear them, and when I first witnessed the actions of the male as he mounted high in the air, and then descended in a series of short, jerky flights, I realized the appropriateness of one of his common names—clown. And no mountebank ever was more gaily attired than he.

Red-headed Woodpeckers, while not remarkably abundant, were common enough among the trees near the water-courses from May 20 to the middle of September, and ever and anon, one or two could be seen working away at a post, or sitting on the ridge-board of a building. Or again, especially in the autumn, the young and old spent much time together engaged in flycatching. This, by the way, has become a very common trait of these birds. While I do not venture to prophesy, yet it may be said that from such small beginnings as this occasional recreation, marked changes in habit or structure often take their rise. Just at present it would be hard to believe that these birds might sometime be driven by natural selection to take regularly to this method of obtaining insect food. Still, should timber become exceedingly scarce, such a result might follow. Moreover I believe that at the present day, even, use and habit may be effecting slight changes in the Red-head's ways of life. The habit of flycatching, which is indulged in by all the species of *Melanerpes*, the genus to which this bird belongs, is no doubt inherited; and it would be strange indeed if continued use of the muscles called upon did not strengthen and modify them, as well as enable the bird to attain skill in their exercise; and these acquirements would be transmitted to the progeny. Then, should the kinds of trees become scarce wherefrom the woodpeckers are wont to search out their food, it is possible to believe that natural selection would preserve those birds that were best enabled to make a living by following the Kingbird's trade, and that in a few thousand generations it would be difficult indeed for the shade of Audubon, on beholding the modified descendant of *Melanerpes*, to tell what manner of bird was before him!

It is more than probable that the genus to which the common Flicker belongs was in remote times nearer than now to the typical woodpeckers, which lead a strictly arboreal life; and glancing from them to him we see the changes that have been wrought. Natural selection has operated upon the coloration of the Flicker's upper parts and rendered them protective to the owner in that they make him inconspicuous as he "hunts bugs" upon the ground, and directive to his companions as he rises therefrom in flight. Moreover, the same agency, assisted by use and wont, has effected other modifications. And why, in the light of these facts, should it be impossible to accept the view that the Red-head, also, may one day become altered in form and habit? But all such changes ultimately depend upon modifications in the environment; unless these occur the organism remains unaltered.

I think it was when severe storms swept over the plains, driving the birds to the vicinity of the buildings and haystacks that I felt for and with them most,

Here is an account, published by me in *Bird-Lore*, vol. VIII, of a May snowstorm and its effects upon the bird-life of the region where it occurred:

"The following notes relate to observations made at Grass Creek, Pine Ridge Reservation, South Dakota. On May 3, 1905, a cold rain prevailed all day, coming from the north. In the evening the rain-storm changed to a snow-storm, which continued all night, all the next day, and into the succeeding night. It was practically a blizzard. Western Lark Sparrows had arrived on May 1, and the storm rendered them very uncomfortable, to say the least. They huddled close to the south sides of the buildings, seeking shelter, and looking for food where the ground was bare. I threw out crumbs of bread to them, many of which they picked up. They slept under the door-steps and in a stable well sheltered by a hill, as well as in spaces among cord-wood in the wood-pile.

"The Horned Larks did not appear to mind the storm greatly, at first, but ultimately they began to flock with the Lark Sparrows. They did not, however, so far as I could ascertain, eat any of the crumbs that I had thrown out. But the cold had made these birds, as well as the sparrows, almost fearless of me.

"A White-rumped Shrike had killed a lark and thrown the body over a wire on the fence, thus enabling him to hold it easily. He was eating the decapitated carcass, and returned to it after I had frightened him off.

"When the snow had nearly disappeared I saw a large number of the sparrows and larks feeding together. A shrike flew over them, a few feet above the ground. The larks nearly all took alarm and flew away, but the sparrows fed on unconcernedly with the few larks that remained.

"The flocks of blackbirds that had previously been with us disappeared while the blizzard was in progress and did not return until it had cleared; but a single Bronzed Grackle, accompanied by a male cowbird, sought at times for food about our doors, during the storm.

"The morning after the storm had ended I saw a Say's Pewee at one of the windows of the house in chase of a fly that was on the outside; and afterwards I saw him trying to secure one or two of these insects that were on the glass within doors. When the storm was raging I had seen him upon the ground, searching for food as ordinary ground-dwellers do."

Say Pewees (*Sayornis sayus*), by the by, are often apt to receive their full measure of winter and rough weather, as they usually arrive in spring at the commencement of the third decade of April, or sometimes sooner, and individuals have been known to tarry until near the end of September.

At Lake Creek, Mallards (*Anas platyrhynchos*), Pintails (*Dafila acuta*), Canada Geese (*Branta canadensis*), and Snow Geese (*Chen hyperboreus*) often winged their way through the air overhead. Various sandpipers, during rainy spells, frequently ventured into the dooryard at that place; the most familiar of these were the Least (*Pisobia minutilla*) and the Baird Sandpiper (*Pisobia bairdi*), and the Upland "Plover" (*Bartramia longicauda*). Curlews (*Numenius americanus*), oftentimes whistled in the meadows. Sandhill Cranes (*Grus mexicana*) flushed from the swamps, floated in the sky like boys' kites, sometimes spending hours in the air before venturing to earth again. Indeed, some persecuted birds must of necessity believe that the earth is no place for them at all. The Great Blue Heron (*Ardea herodias*), too, was met with now and again, and the Bittern (*Botaurus lentiginosus*) could be heard "pumping in the fens." More than this, he frequently approached very close to the houses on the marsh. When winter reigned, the Short-eared Owl (*Asio flammeus*) and the Marsh Hawk (*Circus hudsonius*), a-mousing in the meadows, were an essential part of the snowy landscape.

Bobwhites (*Colinus virginianus*), introduced by man, were not infrequent at Medicine Root and Grass Creek, while at Lake Creek there was one small bevy, which, when alarmed, took refuge under a ranchman's dwelling house! In that region, too, if the statements of the settlers are correct, the Pinnated Grouse (*Tympanuchus americanus*) is increasing in numbers and forcing the Sharp-tailed Grouse (*Pediocetes phasianellus*) out of the valley. In the highland country, however, where I dwelt also, only the latter species is to be found.

Downy (*Dryobates pubescens medianus*) and Hairy (*Dryobates villosus*) Woodpeckers were resident where trees abounded, but did not come to the buildings. Blue jays (*Cyanocitta cristata*) now becoming more numerous with each returning year, often stopped at the door. The Orchard (*Icterus spurius*) and the Bullock Orioles (*Icterus bullocki*) hung their pendent nests in the great cottonwoods that stand isolated on the meadows of Grass Creek; and at the house on the hill there and at Medicine Root the charming lay of the Black-headed Grosbeak (*Zamelodia melanocephala*) was wafted to the ear from the groves below.

Then, too, the notes of migrating Arctic Bluebirds (*Sialia currucoides*) greeted us from overhead, and numberless warblers and greenlets enlivened the thickets as, in their pilgrimages, they followed the north and south streams. But to enumerate all my bird acquaintances in that pleasant land, would, in itself, prove a task; therefore I will not prolong the list. Perhaps they came flying to the grounds—perhaps their notes were zephyr-borne from the trees below; in what way soever they made themselves known, these feathered companions were an unfailing source of pleasure and instruction.

A NESTING COLONY OF HEERMANN GULLS AND BREWSTER BOOBIES

By JOHN E. THAYER

WITH THREE PHOTOS

IN the spring of 1909 I sent my collector, Mr. Wilmot W. Brown, Jr., to the islands off the coast of southern Lower California in the hopes that he would find the nesting place of the Heermann Gull (*Larus heermanni*). After a long and weary search on the different islands, he found a large breeding colony on the southeastern end of the Island of Idelfonso. This was March 28. After waiting a few days, so that the birds would have full sets, he collected a very large series. With a few exceptions most of the nests contained two eggs; some twenty or thirty had three.

Mr. Brown says: "The nest in all cases was simply a well formed depression in the ground with no lining whatsoever. There must have been over fifteen thousand Heermann Gulls nesting on this island.

"On the southeastern end of the island, facing the sea, there is a large semi-circular shaped depression, which covers about five acres. It is quite level on the bottom and covered with gravel, with here and there blocks of lava scattered about. (See fig. 35.) It is well protected from the northwest wind, which prevails here in March and April. At the time I arrived on the island immense numbers of these gulls had congregated. They literally covered the ground. They were so

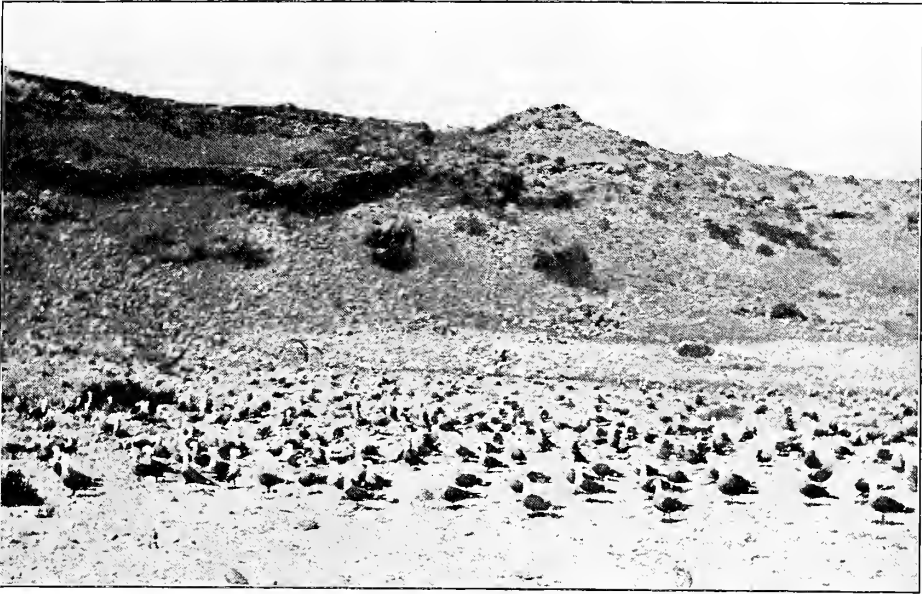


Fig. 34. NESTING COLONY OF HEERMANN GULLS, IDLEFONSO ISLAND, LOWER CALIFORNIA; MARCH 23, 1909

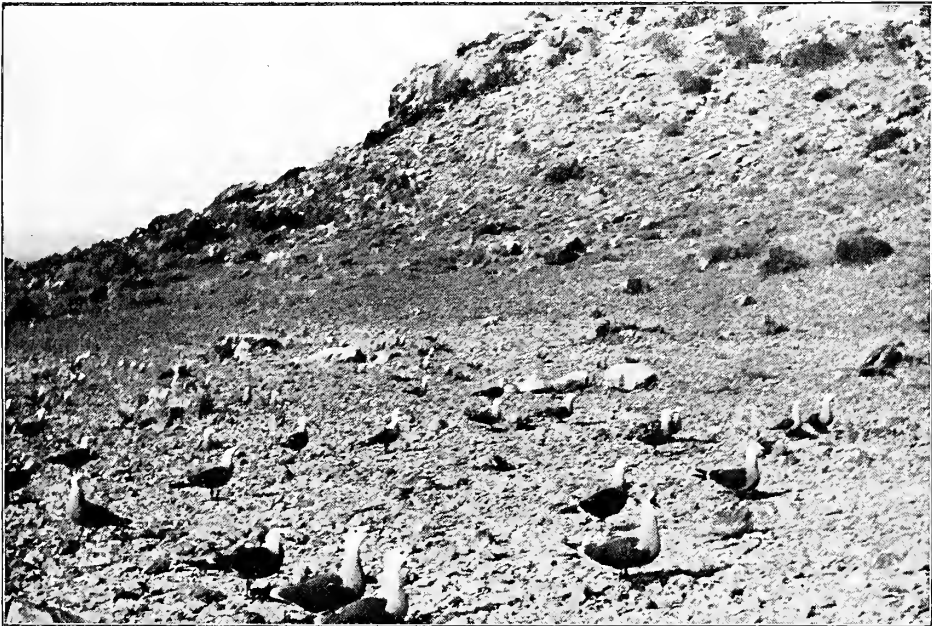


Fig. 35. PORTION OF COLONY OF HEERMANN GULLS; APRIL 8, 1909. AT THIS TIME THERE WERE ABOUT 2500 NESTS IN THE COLONY

occupied in their love-making that they paid very little attention to us. Their cries deadened the cries of all the other birds and they kept it up all through the night.

"In the waters close to the breeding ground large flocks were seen. When I first arrived, March 24, there were an immense number of birds. The males were constantly seen fluttering over the females on the ground, near their nests; but no eggs were laid until April 2. It seems they spend some time in courtship before settling down to their matrimonial duties. The female when in passion emits a peculiar squeaky sound as she coaxes the male by squatting down and going through the most ludicrous motions. I have also seen a pair holding on to each other's bills, a kind of tug-of-war affair; then they would back away and go through a suggestion of a dance, but all the time talking to each other in low love tones.



Fig. 36. A FAMILY OF BREWSTER BOOBIES, BOTH PARENT BIRDS, AND ONE YOUNG ONE IN THE NEST, DOWN. THE NEST IS IN A CREVICE NEAR THE TOP OF A CLIFF

The appearance of a Duck Hawk would send them all flying to sea. They would return however very quickly.

"On the southern end of the island there was a colony of Brewster Boobies (*Sula brewsteri*). They were nesting in the cliffs and caves and in the openings among the rocks (see fig. 36). The nest was composed of a few sticks, in most instances whitened with guano, and on this one egg was laid. I never found a nest with two eggs. I found many nest with one young. I also saw full grown young on the wing, which would indicate that they must begin to nest in January."

Mr. Brown also found breeding on this island the Blue-footed Booby (*Sula nebouxi*), the Craveri Murrelet (*Brachyramphus craverii*) and the Rock Wren (*Salpinctes obsoletus obsoletus*).

FROM FIELD AND STUDY

Remarks on the Food of Young Cowbirds.—To the writer the speculation has been interesting as to whether young Cowbirds must make shift to live and grow on diets varying widely according to the foster parents. An effort has been made to collect material bearing on the problem, but with little success. The vicinity of Washington is a poor place for Cowbirds. However 14 stomachs from other localities have been examined. The distribution among foster parents is as follows: *Icterus galbula* 1, *Poocetes gramineus* 2, *Melospiza melodia* 5, *Vireosylva olivacea* 2, *Vireosylva gilva* 1, *Dendroica aestiva* 2, and *Geothlypis trichas* 1.

On the whole the evidence is very plain that these species give to the young cowbirds the normal diet for their own nestlings. For instance the Vesper Sparrows were the only birds to feed the terrestrial cutworms; but this is a very natural thing for these ground loving birds to do. Only Song Sparrows fed carabid beetles, and weevils, and more than a trace of seeds. This diet agrees with that described for the sparrows by Judd.¹ Moreover three of the Cowbirds fed by Song Sparrows had a bunch of vegetable fibers in their stomachs and were the only nestlings so favored. The Yellowthroat and Song Sparrow were the only ones to feed snails. The diet of the nestlings fed by the Red-eyed Vireo agrees with previous records for this bird in the inclusion of tree-living homoptera. The youngsters foisted upon Yellow Warblers were the only ones treated to moths, an item known to be given to the nestlings of other warblers.

These records show the adaptability of Cowbirds, a characteristic which must receive a severe test in certain cases. For instance the horned larks and various species of blackbirds and sparrows, habitually feed seeds and hard insects to their young. The Rose-breasted Grosbeak uses the "nasty" potato beetle for baby food; and the Cedarbird uses a large proportion of fruit. Perhaps the greatest departure from the average nestling diet among the species parasitized by Cowbirds is in the case of the Turtle Dove. This bird feeds its young entirely on vegetable matter, some of it half-digested, and mixed with a secretion of the crop, being the substance called pigeon's milk. It would be of great interest to know whether cowbirds are ever reared on this pabulum.

Samuels remarks that "This bird although subsisting principally on various seeds and small fruits, destroys great numbers of insects, particularly in the breeding season; in fact its young are fed entirely on insects and their larvæ, and the well known wire-worms."² It has justly been observed before that the credit for choice of insects consumed by young Cowbirds belongs strictly to the foster parents. Considering the food of adult Cowbirds alone the balance is in favor of the species. But when we reflect that each Cowbird brought to maturity is the cause of the death of three or four birds which would have been just as beneficial in the nestling stage, and probably more so in later life, the right of the Cowbird to protection can well be questioned.—W. L. MCATEE.

Notes on a Broken Leg in the White-rumped Shrike.—My friend, Dr. G. E. French, has called my attention to a peculiarly healed broken leg of a female White-rumped Shrike (*Lanius ludovicianus excubitorides*), which he had collected on February 18, 1911, for mounting.

The tibio-tarsus and fibula of the right leg had been broken squarely off about three-eighths of an inch above the distal end, as is shown in figs. I, II and III. The activity of the bird very evidently had prevented a union of the broken ends, which were separated a sixteenth of an inch, but which had finally been bridged together by two very strong bone arches. As healed, the lower end of the tibio-tarsus had a marked lateral bend, but not enough to attract attention before dissection. The muscles of the lower leg were well developed, which would indicate that the shrike had recovered good use of its foot.

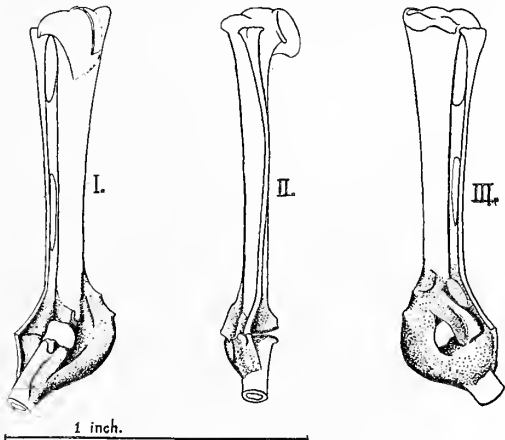


Fig. I is a view of the anterior surface, fig. II a view of the right lateral surface, and fig. III a view of the posterior surface.—CLARENCE HAMILTON KENNEDY.

¹ Yearbook, U. S. Dept. Agr. [1900] 1901, pp. 419-422.

² Samuels, E. A., U. S. Agric. Rep. [1864] 1865, p. 426.

The Catbird in Southern Idaho.—On August 1, 1909, while prowling along a thick fringe of scrub willow, beside a lagoon-like pond on the Boise river bottoms, I started the only catbird (*Dumetella carolinensis*) I have seen this side of the Rocky Mountains. At the time I did not think the occurrence specially worthy of note, as I was then new to this section; but having explored this same thicket and others of a similar sort and in similar location, many times since, without results, I have concluded the species is rare, in this section at least.—L. E. WYMAN.

A Nesting Incident of the Brewer Blackbird (*Euphagus cyanocephalus*).—In July, 1909, having occasion to burn a pile of brush in the road near my residence, I removed therefrom a nest of this bird, with three eggs, and fastened the same in a crotch of a small black locust about twenty-five feet distant. The next morning I was surprised to see the mother bird on the nest in its new location, brooding as though nothing had happened, and in due time two young appeared, though the family cat prevented their reaching maturity.—L. E. WYMAN.

The Virginia Rail at Helena, Montana, in Winter.—On February 22, 1911, I secured an adult male Virginia Rail (*Rallus virginianus*) near Helena, Montana. The bird was one of three that were found in a willow swamp where warm springs keep the waters open all winter. The birds were feeding about the edges of these springs. The one shot was in good condition and there is every reason to believe that all of them had remained there throughout the winter. Two other species by no means common in winter in Montana, but seen in the same vicinity at the same time, are the Western Meadowlark and Wilson Snipe.—ARETAS A. SAUNDERS.

Occurrence of the Red Crossbill (*Loxia curvirostra minor*) in Southern Idaho.—While this bird should be, and probably is, common, or at least not rare, among the conifers of the mountains, it apparently seldom strays into this section of the Boise Valley. Last October I saw a small flock of birds passing overhead and heard the familiar note of the Crossbill. The flock alighted in a Lombardy poplar and a shot brought down a Crossbill and a House Finch. As nearly as I could determine without glasses, the Crossbill was the only bird of its species in the flock, the rest being House Finches (*Carpodacus mexicanus frontalis*).—L. E. WYMAN.

The Yellow Rail in Southern California.—A Yellow Rail (*Coturnicops noveboracensis*), male, no. 2077, coll. of P. I. O., was received from Mr. Evan Davis of Los Angeles. The specimen was collected at Newport Bay, California, on December 12, 1896, by Mr. J. H. Henderson. Are there other records for this vicinity?—PINGREE I. OSBURN.

Some August Notes for Lake Valley.—I spent most of August, 1906, at Lake Valley, which lies at the southern end of Lake Tahoe. This being my first visit at so late a date, a comparison with the Valley's bird life in May and June may be of interest. While advancing summer finds certain birds ascending to still higher altitudes, on the other hand some species, or rather individuals, having reared their young in high altitudes, now descend to lower levels. In May and June at Bijou, such birds as the Pine Siskin (*Spinus pinus pinus*), Olive-sided Flycatcher (*Nuttallornis borealis*), Slender-billed Nuthatch (*Sitta carolinensis aculeata*), Williamson Sapsucker (*Sphyrapicus thyroideus*) and Clarke Nutcracker (*Nucifraga columbiana*) are either scarce or wanting; in August, however, I found these not uncommon and collected examples of all of them in the immediate vicinity of Bijou.

Green-tailed Towhees (*Oreospiza chlorura*), while scarce in the breeding season at Bijou, although nesting commonly in certain localities adjacent, were in August one of the most common birds, being found in large numbers along the now dry meadowlands in company with the Sierra Junco (*Junco hyemalis thurberi*).

In general birdlife, being increased by the young of the year, was more abundant than earlier. These conditions did not obtain at the Rowland's Marsh at Al-Tahoe, however, where the defection was very marked. Here we found almost the entire summer congregation absent. Of its usual quota of thousands of Yellow-headed Blackbirds (*Xanthocephalus xanthocephalus*) we observed only a single individual, an immature male; Forster Terns (*Sterna forsteri*) were entirely wanting and the very few Black Terns (*Hydrochelidon nigra surinamensis*) seen were all young of the year. In our tour of the marsh, however, we secured a new bird for the Lake Valley checklist in the Least Sandpiper (*Pisobia minutilla*). A flock of about twenty passed over our boat and we secured three specimens, all adults. Another species new for the checklist was the Sora Rail (*Porzana carolina*). We first took this bird on the Bijou Meadow on August 12; on August 27, on our trip through the Rowland's Marsh, we noted two more rails of this species. During a stay of a little over a month the writer made a collection of about fifty skins, including a few of the smaller mammals. The two birds already noted, however, were the only ones to be newly recorded for Lake Valley.—MILTON S. RAY.

The Bohemian Waxwing in Placer County, California.—The California Academy of Sciences recently received a female Bohemian Waxwing (*Bombycilla garrula*) from Dutch Flat, Placer County, California. It was sent by Mr. E. K. Carnes, Superintendent of the State Insectary, who stated that it was shot on February 26, 1911. He writes under date of March 3: "Large numbers of this species of bird have appeared in the apple orchards around the town just named and are feeding on the decaying fruit, which has been left on the ground or is still hanging on the tree."—E. W. GIFFORD.

The Egret in Southern California.—While crossing the salt marsh north of Alamitos Bay, Los Angeles County, California, 9:30 a. m., February 26, 1911, en route to Newport Beach, I saw two Egrets (*Herodias egretta*) standing in a tide pool about seventy-five yards from the Pacific Electric R. R. tracks. The passing of the car did not seem to disturb them. When returning, about 1:30 p. m., I did not see the birds.—C. B. LINTON.

The Troupial in California.—On April 30, 1911, I obtained near Santa Barbara a Troupial (*Icterus icterus*), a most beautiful male. The plumage is absolutely perfect, not a feather being frayed in either wings or tail, and the feet are in perfect condition. To me there seems no possibility that it can be a cage bird. It was in upper Mission Canyon, a very wild locality, in company with a flock of Western Tanagers that were passing through, and seemed very much at his ease. He was in fine condition, and the stomach was crammed with small green cankerworms.—J. H. BOWLES.

Bobolink at Great Altitude.—It may be of interest to note the presence at Leadville, Colorado, at an elevation of 10,150 feet, of two male Bobolinks (*Dolichonyx oryzivorus*) on the 17th day of July, 1907, a little before nine o'clock in the morning.

They were on a bunch of weeds, less than half a block east of the Public Library, and not more than twenty-five feet from me as I passed on the sidewalk. I might add that they are the only ones I have ever seen in thirty years experience in this county, which includes the principal sources of the Arkansas river.

Perhaps, when the more absorbing duties of early summer were over, they were seeking, like many another, the delightful exhilaration of a mountain trip!—J. CLARENCE HERSEY.

Unusual Nesting Site of the San Nicholas Rock Wren.—While visiting San Nicholas Island, April 14 and 15, 1911, my attention was called to a pair of these wrens (*Salpinctes obsoletus pulverius*) carrying nest material into a crack under the eaves of the store-house where the ranch provisions are kept. Both birds were seen at work at the same time. About 20 men (sheep shearers, et al.) were at work 15 to 30 feet distant, and were constantly passing and entering the store-house. The birds entered the nesting-site while I was standing within five feet of the building.—C. B. LINTON.

Field Notes From the San Joaquin Valley.—Beginning March 5 of this spring (1911) the Museum of Vertebrate Zoology of the University of California has kept a party in the San Joaquin Valley, central California, for the purpose of investigating the mammal fauna of the region. While the bulk of attention was necessarily devoted to the trapping and study of mammals, some observations were made on the birds of the region traversed. The writer of the present sketch spent about five weeks with the party between March 5 and May 5, and the following scattered information relative to the birds is selected from his note book as being thought worthy of being made accessible to the bird student in general. A few specimens were taken and comments on some of these are also added.

California Jay (*Aphelocoma californica*). Of extraordinary abundance in the vicinity of Raymond, Madera County. I used to be skeptical of the notion that Jays have very much deleterious influence on the small bird life of a locality. But after witnessing a single jay despoil a Brown Towhee's nest and eggs in spite of the spirited defense put up by both owners, and after seeing another jay beating a young sparrow to death, I feel inclined to attribute the relative scarcity of small birds around Raymond to the presence of so many California Jays. The place would appear perfectly suited to a large population of gnatcatchers, bush-tits, towhees, wrens, vireos and warblers, but the expected species were either scarce or wanting. Five jays' nests each with eggs or young were encountered, although I was not hunting for birds' nests. These were in small oaks or ceanothus bushes, four to ten feet above the ground, with no apparent attempt at concealment, beyond that incidental to support and shade.

Western Grasshopper Sparrow (*Ammodramus savannarum bimaculatus*). A single specimen obtained on an alfalfa patch at Earlimart, Tulare County, April 30.

Western Savannah Sparrow (*Passerculus sandwichensis alaudinus*). Still present at Earlimart, Tulare County, up to May 4. This to my mind constitutes late tarrying of winter visitants, and in no wise indicates a breeding station. The behavior of the birds at no time was such as to lead one to suspect nesting; and a specimen shot on April 30 was just completing a partial pre-nuptial molt, being in the consequent plumage a duplicate of Alaskan specimens. It would appear quite unsafe to base breeding records of any of these migratory sparrows upon anything short of actual discovery of nests and eggs or small young.

Intermediate Sparrow (*Zonotrichia leucophrys gambeli*). Observed at various points all through April. At Earlimart, Tulare County, several were noted on the 30th. One was shot on May 1, and none were noted thereafter, thus establishing a date of departure for this season and place.

Nuttall Sparrow (*Zonotrichia leucophrys nuttalli*). A number of this form were noted in mixed flocks of sparrows in rose thickets along levees five miles northeast of Tracy, San Joaquin County, March 11. Two specimens shot were preserved, and comparison in the Museum shows them to be unquestionably of this race, thus establishing an eastward extension of the known winter range of *Z. l. nuttalli*.

Heermann Song Sparrow (*Melospiza melodia heermanni*). During the travels of myself and assistants, we kept a constant lookout for song sparrows. The result was that contrary to previous notions large parts of the San Joaquin Valley were found to be absolutely without any representative of the genus. Neither in the vicinity of Tracy, Los Banos, or Raymond could song sparrows be found. A few were noted in the neighborhood of Fresno; and on the Fresno County side of the San Joaquin River near Lane Bridge (ten miles north of the city of Fresno) four specimens were secured. Mr. John G. Tyler, of Fresno, who was with me at this point, helped me to secure these and also contributed a nest with four slightly incubated eggs which he found in the river bottom close to our camp on April 7. Another nest with three fresh eggs was found on the 8th. In each instance the nest was located in low vegetation, against which drift-trash had lodged; in one case the nest was $2\frac{1}{2}$ feet above the ground, in the other four feet.

Song sparrows were found again only at Earlimart, Tulare County, where a male and two females were taken April 30 and May 2. These were the only individuals observed at this place, and were inhabiting a willow-margined reservoir.

The seven song sparrows secured, as just specified, are as uniform as usual, considering the normal range in individual variation; and they are very nearly duplicates of topotypes of *M. m. heermanni* from Fort Tejon, Kern County. The known range of *heermanni*, as lately restricted (see Grinnell, Univ. Calif. Publ. Zool. V, April 1909, p. 266), is thus extended north to include parts of the Tulare basin. *Heermanni* is distinct from *M. m. mailliardi* (Univ. Calif. Publ. Zool. VII, February, 1911, p. 197). The differences lie in the much paler "ground color" dorsally of *heermanni*, the narrower black-streaking both above and below and in the slightly smaller bill.

There is still a great stretch of country—between Fresno and Modesto—from which we have no *Melospizine* returns. There may be an actual hiatus between the ranges of *heermanni* and *mailliardi*. For, as our San Joaquin work has demonstrated, it is a grave mistake to assume that song sparrows range uniformly all over the bed of the Valley and up into the foothills. Rather are there only narrow belts of occupied ground, coinciding with sections of riparian strips. Vast areas of dry prairie intervene, unsuited to this bird. However, a circumstance accompanying human invasion will tend to obliterate these original conditions: Song sparrows were seen in the Fresno district along irrigation canals. These canals thus serve to divert a stream of riparian plants and animals, including the song sparrow, out over the plains between the rivers, by which process the fauna of the originally arid levels becomes metamorphosed. The ranges of the song sparrows of interior California may thus be expected to shift to a considerable extent from what they were or even are at the present stage of events.

An incident of interest though not of definite significance was that at the Earlimart reservoir referred to above there were two females, each with a nest, but only one male, at least at the time of my arrival, April 30. One of the females, shot together with the male on that date, contained very large ova (one egg would have been laid probably the next day), and her nest was apparently completed. The other female was taken on May 2 together with her nest and four fresh, or infertile, eggs. This bird was incubating, as the subdermal layer in the abdominal region was glandular to an extreme degree. This state of affairs (one male, and two females with nests) might be accounted for by any one of three explanations: (1) that there *was* another male at the reservoir, but destroyed by some means before my arrival; (2) that an excess female without a mate had gone ahead and built a nest and produced infertile eggs; or (3) that where there were more females than males, polygamy had occurred and the male had mated with two

females. It should be emphasized that these three song sparrows were the only ones found in the Earlimart neighborhood, and that the reservoir referred to (on the Moore ranch) was the only bit of favorable environment within a radius of at least three miles.

Forbush Sparrow (*Melospiza lincolni striata*). Four specimens quite typical of this form were shot at a marshy place in the San Joaquin river bottom near Lane Bridge, Fresno County, April 9 and 10. Tyler (CONDOR XIII, March 1911, p. 76) has already recorded this sparrow from the Fresno district, but as found in December.

Barn Swallow (*Hirundo erythrogastra*). A pair seen by both Mr. Tyler and myself on a telephone wire over a bridge near Fresno March 15. Doubtless the same pair was seen in the same place April 6. The former date appears to be the earliest on record for the arrival of this swallow within the State. Mr. Tyler tells me that very many Barn Swallows nest in Fresno County; and I found a pair nesting near Tipton, Tulare County, April 24.

Phainopepla (*Phainopepla nitens*). On March 11 I saw a male of this species among some valley oaks five miles northeast of Tracy, San Joaquin County. The bird was staying around clumps of mistletoe, which plant infested many of the oaks at this point. I also heard notes of Phainopeplas in the distance, though only the one individual was located; so it is not improbable that the occurrence was more than casual at this time and place. I saw a male of this species in the foothills at Raymond, Madera County, April 16.

California Shrike (*Lanius ludovicianus gambeli*). A nest of this species was observed near Pixley, Tulare County, April 29, containing seven well-incubated eggs. The notable feature of this nest was the site selected. The region is well-nigh tree-less, hence those birds under natural conditions selecting trees for nesting places and at the same time determined to remain in the region are compelled to resort to unusual sites for their nests. All through the valley, beginning April 20, the Western Kingbirds were building nests on telegraph poles and fence posts. The pair of shrikes in question had constructed their nest on top of one of the posts of a fence paralleling the county road where autos and other vehicles were constantly passing. The nest was sheltered by two boards converging overhead and nailed to the fence post vertically for the support of a telephone wire. The nest was typically constructed, the outer portion of an interlaced mass of stiff twigs flaring out broadly on the two unsheltered sides. To express it otherwise the nest was so firmly wedged between the two boards that it could not have been removed except by tearing it to pieces or removing the boards. In spite of its conspicuous position the venture gave promise of success.

California Least Vireo (*Vireo belli pusillus*). At Lane Bridge, ten miles north of Fresno, this bird had already arrived April 7. Several were heard or seen in the willow association along the Fresno County side of the San Joaquin River. Mr. Tyler says the species nests in the Fresno district.

Dotted Canyon Wren (*Catherpes mexicanus punctulatus*). There being no canyons or even steep-sided ravines, at Raymond, Madera County, the presence of the Canyon Wren was rather unexpected there. However the otherwise smooth and rounded foothills were marred by many low projecting ledges and boulder-piles. These evidently formed congenial and productive forage ground, though the two pairs of wrens discovered had each established headquarters in places of human construction—one in an abandoned cabin, the other in a granite quarry.

Mountain Bluebird (*Sialia currucoides*). Abundant on the newly sprouted grain fields around Tracy, San Joaquin County, the second week in March. This species was reported from several quarters as much more numerous than usual the past winter on the floor of the valley.—J. GRINNELL.

An Albino.—I have noticed two albino English Sparrows (*Passer domesticus*) lately. One specimen was a dirty gray, and the other, which I have seen several times, is pinkish cinnamon, with snow white tail and primaries.—W. E. ENGLISH.

The Bohemian Waxwing in Sacramento County, California.—That there has been a general visitation by this species to this state the past season is further indicated by the following record: Mr. W. H. Noble, of Galt, Sacramento County, California, sent to the Museum of Vertebrate Zoology a specimen (now no. 17210) of *Bombycilla garrula* taken at that place March 14, 1911.—J. GRINNELL.

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EDITORIAL NOTES AND NEWS

Mr. Edmund Heller has embarked upon a third expedition to British East Africa, in pursuit of big game. This time he is one of a party equipped with a string of cow ponies, a pack of bear dogs, and a moving picture machine. It would appear that an extreme of exciting adventure will be one pretty certain outcome of such a combination! However, Mr. Heller is the naturalist of the party, and will collect and prepare as scientific specimens, as much of the spoils as possible for the National Museum. He will particularly try to obtain material supplementary to the Roosevelt collections, which are the basis of an extended scientific report in course of preparation by Mr. Heller.

Mr. Fred M. Dille, a pioneer Colorado naturalist, has been appointed special warden by the U. S. Biological Survey, to investigate ornithological conditions in the vicinity of the Minidoka and Deer Flat reclamation projects in Idaho, and the Cold Spring project in Oregon. He assumes his new duties at once.

Mr. W. L. Burnett, who has long been identified with biological work in Colorado, has recently been appointed Curator of the Museum of the State Agricultural College, at Ft. Collins, Colorado. His new position will enable him to devote his entire time to biological work, and the college is to be congratulated upon securing the services of a man so emi-

nently equipped for the work he is to undertake. Mr. Burnett assumes his new position June 1st.

A few of the older members of the Cooper Club may be interested to know that Mr. H. B. Bailey, one of the founders of the Nuttall Club, American Ornithologists' Union, and Linnaean Society, has become an active worker in the ranks of ornithologists and oologists once more. Since his collection of eggs went into the Museum of Natural History in New York some years ago, he has done little active work along these lines. Having lately retired from business he has taken up his old hobbies and has joined forces with his son in a new Bailey Collection and Library. He left some time ago for Florida on an extensive trip after specimens.

Mr. Alex Wetmore, who has been at the Kansas State University for the past year, has left Lawrence, Kansas, for Seattle, Washington, where he is to join Mr. A. C. Bent and Rollo Beck in an extended collecting trip through the Aleutian Islands. Mr. Wetmore joins the party as a representative of the Biological Survey.

Mr. E. R. Warren left his home at Colorado Springs about the middle of May, for an extensive collecting trip through central and northern Colorado. Mr. Warren is thoroughly equipped with a sea-worthy prairie schooner, and expects to be in the field until fall.

According to our critic (T. S. P.) in April *Bird-Lore* it would appear that the illustrations in *THE CONDOR* have improved greatly since we dropped simplified spelling!

PUBLICATIONS REVIEWED

THE HOME-LIFE OF THE SPOONBILL, THE STORK AND SOME HERONS, by BENTLEY BETHAM, F. Z. S. [Witherby & Co., London, 1910, pp. i-viii, 1-47, pl. 1-31. Price 6 s. net.]

Four species are treated, the Spoonbill, White Stork, Common Heron and Purple Heron. They were studied and photographed from blinds placed in marsh or tree top, as the case might be, and with what would appear to be most gratifying success. The photographs are beautiful and instructive, conveying much information of a sort that would be difficult to obtain from the best written accounts, while the accompanying text is couched in a most attractive style, and, though but a comparatively limited space is given to each species, contains a great deal of very interesting life history. The description of the actions of the young Purple Herons, deserting their nests in the tree-tops at the approach of danger, and taking refuge in the tangles of underbrush on the ground, each returning to his own home when the danger has passed, is of great interest; additional traits of this species as well as

of the others are related in an equally entertaining style.

If any criticism be made of the manner of production of the book it would be to point out the fact that, with the exception of the Purple Heron, the species treated are nowhere alluded to by their scientific names, thus precluding the possibility of these truly valuable contributions to their life histories being anywhere cited in literature. A more definite statement as to the geographic locality of the colonies observed would also be desirable.—H. S. S.

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

DECEMBER.—The December meeting of the Southern Division of the Cooper Club was held on Thursday evening, December 29, 1910, in Room 526 Merchants Trust Building. In the absence of President Morcom, the meeting was called to order by Vice President Lelande, with the following members present: Messrs Dawson, Howard, Zahn, Willett, Linton, Osburn, Antonin Jay, Davis, Robertson, Fischer, Miller, Owen, Lelande, Shepardson, Blaine, Tracy, Howell, Chambers and Law, and with Dr. Guy C. Rich as a visitor.

The minutes of the November meeting were read and approved. The following applications for membership were presented, Dr. Guy C. Rich, Hollywood, proposed by W. Lee Chambers, and Wilfred Smith, Santa Monica, proposed by O. J. Zahn. On motion by Mr. Willett, seconded by Mr. Zahn, and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Mr. Fred Granville, proposed at the last meeting.

The Secretary presented the draft of the new Constitution proposed by the Northern Division, and on motion by Mr. Robertson, seconded by Mr. Miller, and duly carried, it was ordered referred to a committee consisting of Messrs. Robertson, Davis and Law for approval; said members to have the power of acting for the Club. On motion by Mr. Willett, seconded by Mr. Robertson, and duly carried, the nomination of officers for 1911 as made at the last meeting, and withdrawn because made one month too soon, were sustained. They are as follows: President, G. Frean Morcom, nominated by Mr. Willett; Vice President, H. J. Lelande, nominated by Mr. Shepardson; Treasurer, W. Lee Chambers, nominated by Mr. Willett; Secretary, J. E. Law, nominated by Mr. Osburn.

The Club then enjoyed a very thorough description of his work by Mr. W. Leon Dawson, outlining the work already accomplished on the Birds of Washington, and exhibiting a

great many of the plates used; also thoroughly detailing the proposed work on the Birds of California. This Mr. Dawson expects to complete in 1916, and to devote his time exclusively to its production. When completed it will be one of the most ambitious among bird works, and a handsome addition to any library.

Mr. Willett, who has in charge the compiling of the new list of the Southern California Birds, asks especially for notes from all those having winter records of the Hudsonian Curlew, Avocet, Stilt, Semipalmated Plover and Marbled Godwit. Adjourned. J. E. LAW, *Secretary*.

JANUARY.—The January meeting of the Southern Division of the Cooper Club was held on Thursday evening, January 26, 1911, in the office of H. J. Lelande, 246 Wilcox Building, Los Angeles. The meeting was called to order by President Morcom, with the following members present: Messrs Ingersoll, Rich, Howard, Lelande, Robertson, Howell, Appleton, Willett, Chambers, Dawson, Miller, Linton, Zahn, VanRossem, Shepardson, Blaine and Law.

The minutes of the December meeting were read and approved. The following applications for membership were presented: Orland Beekman, Sespe, Cal., proposed by Lawrence Peyton; and Olive Thorne Miller, Los Angeles, proposed by A. B. Howell. On motion by Mr. Robertson, seconded by Mr. Howard, and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Dr. Guy C. Rich and Mr. Wilfred Smith, whose names were presented at the December meeting.

On motion by Mr. Zahn, seconded by Mr. Howard, and duly carried, Mr. Robertson was instructed to cast separately the unanimous ballot of those present electing for 1911 the officers nominated at the last meeting, as follows: President, G. Frean Morcom; Vice-President, H. J. Lelande; Treasurer, W. Lee Chambers; Secretary, J. E. Law.

Mr. Robertson, as Chairman of the committee on the Constitution, read the proposed new Constitution, clause by clause. Each one was discussed at length by the members present, and several suggestions made which the committee was instructed to embody into carefully worded clauses, and present for the approval of the Southern Division at the next meeting.

The Secretary read a paper by Mr. C. I. Clay, of Eureka, California, entitled "The Spotted Owl in Northern California." This recited Mr. Clay's very unique experience with the Spotted Owl, and its weird night notes, while camping in the wilds of Humboldt County. Adjourned. J. E. LAW, *Secretary*.

FEBRUARY.—The February meeting of the Southern Division of the Cooper Club was held on Thursday evening, February 23, 1911, in the office of H. J. Lelande, 246 Wilcox Building, Los Angeles. The meeting was called to order by President Morcom, with the following members present: Messrs. Miller, Robertson, Lelande, Willett, Davis, Rich, Wright, Chambers, Fisher, Lowe, Antonin Jay, Blaine, Van Rossem, Brower, Perez and Law.

The minutes of the January meeting were read and approved. The following applications for membership were presented: Walter Brower, Los Angeles, and Maurice Cory Blake, Nordhoff, California, by W. Lee Chambers. On motion by Mr. Robertson, seconded by Mr. Miller, and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Messrs. Orland Beekman and Mrs. Olive Thorne Miller, whose names were presented at the January meeting. On motion by Mr. Robertson, seconded by Mr. Miller, and duly carried, action on the resignation of Mr. W. N. Lowe was postponed until next meeting.

The Secretary read copy of the communication forwarded by the Northern Division to the Senate Committee on Fish and Game, and on motion by Mr. Robertson, seconded by Mr. Miller, and duly carried, the same was ordered filed. A letter from Mr. Henry Oldys with reference to his lectures on bird subjects was read, and on motion by Mr. Rich, seconded by Mr. Willett, the Secretary was instructed to thank Mr. Oldys, and explain that the Club is not in a position at the present time to take the matter up.

The Club then took up the new Constitution as remodeled by the Committee, and on motion by Mr. Lelande, seconded by Mr. Willett, and duly carried, the present draft of the Constitution was adopted subject to the approval of the Northern Division. On motion by Mr. Miller, seconded by Mr. Willett, and duly carried, the Committee on the Constitution was discharged with thanks.

The Secretary then read an exhaustive paper by Mr. Joseph Grinnell on the "Distribution of the Mockingbird in California". Adjourned.—J. E. Law, *Secretary*.

MARCH.—The March meeting of the Southern Division of the Cooper Club was held on Thursday evening, March 30, 1911, in the office of H. J. Lelande, 246 Wilcox Building, Los Angeles. The meeting was called to order by President Morcom, with the following members present: Messrs. Willett, Lelande, Miller, Owen, Robertson, Antonin Jay, Blaine, Perez, Zahn and Law.

The minutes of the February meeting were read and approved. The following applications for membership were presented:

Prof. Stephen Sargent Visser, Vermillion, S. D.; Lucius H. Paul, Newark, N. Y.; Maunsell S. Crosby, Rhinebeck, N. Y.; Herbert Parker, South Lancaster, Mass.; J. M. Edson, Bellingham, Wash.; W. J. Hoxie, Savannah, Ga.; Joseph Parker Norris, Jr., Philadelphia, Pa.; Eugene E. Caduc, Boston, Mass.; Philip Bernard Philipp, New York, N. Y.; Juliette A. Owen, St. Joseph, Mo.; Frederick H. Kennard, Newton Center, Mass.; Rowena A. Clarke, St. Louis, Mo.; Alexander Dawes Du Bois, Ithaca, N. Y.; J. H. Trumbull, Plainville, Conn.; Frank O. Pilsbury, Walpole, Mass.; W. B. Mershon, Saginaw, Michigan; Samuel S. Dickey, Waynesburg, Pa.; Roy Norris, Richmond, Ind.; J. F. Frazier, Audubon, Iowa; Elizabeth B. Davenport, Brattleboro, Vt.; all proposed by Mr. Alfred B. Howell; Benjamin Weed, San Francisco, Cal., proposed by J. Grinnell and Leon Lloyd Gardner, Claremont, California, by J. E. Law. These applications were held for action at the next meeting.

On motion by Mr. Robertson, seconded by Mr. Lelande, and duly carried, the secretary was instructed to cast the unanimous ballot of those present electing to active membership Messrs. Maurice Cory Blake and Walter Brower, whose names were presented at the February meeting.

On motion by Mr. Robertson, seconded by Mr. Owen, and duly carried, the Secretary was instructed to correspond with the Northern Division, and if the manuscript of "Belding's Water Birds of California" has not been placed in the Bancroft Library to see if it could not be arranged to have same deposited in the Museum of History, Science and Art in Los Angeles, to be under the control of the Cooper Club. Mr. Robertson stated that the Museum will be required to publish each year a list of everything received by the Museum and there will be additional funds for some publications of a special kind. The appropriations are liberal, and the buildings absolutely fire-proof, and the Museum is to be ready for occupancy by July, 1911. On motion by Mr. Willett, seconded by Mr. Robertson, and duly carried, the resignation of Messrs. H. N. Lowe, A. H. Keeney and Chas. L. Metz were accepted with regret.

The Secretary then read a paper by Loye Miller entitled "A Synopsis of Our Knowledge concerning the Fossil Birds of the Pacific Coast of North America". Adjourned.—J. E. Law, *Secretary*.

NORTHERN DIVISION

JANUARY.—The January meeting of the Northern Division of the Club was held at the Museum of Vertebrate Zoology, Berkeley, on the evening of January 23, with President Grinnell in the chair, and the following mem-

bers present: J. Mailliard, J. W. Mailliard, E. Mailliard, E. W. Gifford, W. P. Taylor, H. C. Bryant, H. W. Carriger, T. Storer, O. J. Heinemann, H. L. Coggins, and H. S. Swarth.

The minutes of the December meeting were read and approved, and followed by the reading of the minutes of the Southern Division's December meeting. Two new members were elected, Edgar Boyer, of Sparks, Nevada, and J. D. Sornborger, of Rowley, Mass., both proposed at the last meeting by W. Lee Chambers. Eleven names were presented for membership: Frank E. Johnson, Yonkers, N. Y., proposed by W. Lee Chambers, and the following presented by A. B. Howell: T. H. Jackson, West Chester, Pa., O. E. Baynard, Gainesville, Fla., C. Brandreth, Ossining, N. Y., C. E. Brown, Boston, Mass., W. W. Cooke, Washington, D. C., R. W. Shufeldt, Washington, D. C., D. J. Nicholson, Orlando, Fla., Lynds Jones, Oberlin, Ohio, G. S. Guian, Napoleonville, La., A. A. Allen, Ithaca, N. Y.

Mr. Grinnell repeated a verbal report received from Mr. Wheeler, who was unable to be present. Mr. Wheeler had been appointed to look after certain mounted birds, the property of the Club, and supposed to be in the custody of one of the Oakland Public Schools. He had so far been unable to find the birds, but expressed his willingness to follow up the matter if the Club wished it, and he was instructed to do so.

The election of officers for 1911 was now in order, and as there were no contesting nominees for the various offices, a motion was made and carried that the secretary cast a ballot electing to office the nominees announced at the last meeting. The officers for 1911 are as follows: President, Joseph Mailliard; Vice-President, H. W. Carriger; Secretary, H. S. Swarth; Business Manager, W. Lee Chambers; Editor, Joseph Grinnell. A vote of thanks was then tendered the retiring officers for the excellent work done by them during the past year.

At the conclusion of this business the pleasurable program of the evening was taken up. Mr. H. C. Bryant gave a talk of his experience while conducting an educational exhibit of birds and mammals on the Agricultural Train through the northern part of the State. His work in ornithology deals with its economic side, and it was of decided interest to hear from him which species of birds were regarded as harmful, and which as beneficial, by the average farmer. The Meadowlark in particular seems to be in very bad repute in northern California; in fact, public opinion is so overwhelmingly against it that it seems doubtful whether it can be kept any longer on the list of protected species.

After a discussion of the points brought up a

motion was made by J. W. Mailliard, seconded by E. W. Gifford, that the President appoint a committee of three to confer with the State Fish and Game Commission to ascertain in what manner the Cooper Club may best further the cause of bird protection in the State Legislature, and that the committee be authorized to take such action as it saw fit. The motion was passed and a committee appointed consisting of J. Grinnell, J. S. Hunter, and J. W. Mailliard.

Mr. Grinnell then read a paper on the "Distribution of the Mockingbird in California," which was afterwards discussed at some length.—H. S. SWARTH, *Secretary*.

FEBRUARY.—The February meeting of the Northern Division of the Cooper Club was held on Saturday evening, February 18, at the office of the State Fish and Game Commission, Merchants Exchange Building, San Francisco. President Mailliard was in the chair, and the following members present: W. P. Taylor, J. Grinnell, D. A. Cohen, Gaylord K. Snyder, E. W. Gifford, D. C. Brown, H. W. Carriger, H. Coggins, O. J. Heinemann, J. S. Hunter, T. Storer, and H. S. Swarth. Mr. George Schinssler was a visitor.

The minutes of the January meeting were read and approved, followed by the reading of the minutes of the January meeting of the Southern Division.

Acting on the names of the eleven applicants for membership, proposed at the January meeting, a motion was made and carried that the secretary be instructed to cast a ballot declaring them elected to membership in the Club. The following applications for membership were then presented: Reginald C. Barker, Blackwater, Arizona, proposed by M. French Gilman; Owen Durfee, Fall River, Mass., by W. Lee Chambers; Robert Barbour, Montclair, New Jersey, and H. Nehrling, Gotha, Florida, by A. B. Howell; and F. M. Lane and Nita A. Blayney, both of Fresno, California, by John G. Tyler. The resignation of Mr. Geo. J. Obermuller was read and accepted.

The report of the business manager for 1910 was then read. Circumstances prevented Mr. Chambers from placing a detailed report before the meeting, but his concise statement of the financial status of the Club, and THE CONDOR, was extremely gratifying. A vote of appreciation was extended to Mr. Chambers for the excellent results he has accomplished.

A letter was read received from Mr. W. C. Wood, Superintendent of the Alameda City Schools, relative to certain mounted birds, the property of the Club. Mr. Roswell S. Wheeler had been appointed to ascertain the whereabouts of these birds, and the secretary was instructed to request from Mr. Wheeler a list of

the said mounted birds, the species and number of specimens of each.

Messrs. Grinnell, Mailliard, and Hunter had been appointed a committee to ascertain in what manner the Cooper Club could best co-operate with the State Fish and Game Commission, for the protection of the birds of the State, and Mr. Mailliard read a letter that the Committee had addressed to the Chairman of the Assembly Committee on Fish and Game, expressing the confidence of the Club in the policy of the Fish and Game Commission, and urging that the present laws be upheld.

Mr. W. P. Taylor, as chairman of the Committee on securing the meeting of the American Ornithologists Union in San Francisco in 1915, made the following recommendation: Whereas the purpose for which this committee was appointed would at this stage best be subserved by co-operation with the Pacific Association of Scientific Societies, it is therefore recommended that the first annual meeting of the Cooper Ornithological Club as a whole be held at the University of California, Berkeley, on March 31 and April 1, 1911, in conjunction with the annual meeting of the Pacific Association. Mr. Taylor's report was accepted, and it was moved and seconded and duly carried, that the committee be instructed to further co-operate with the Pacific Association, and to arrange for a joint meeting of the societies, as recommended.

A discussion arose as to the proper disposal of the manuscript of Belding's "Water Birds of California", now in possession of the Club, and it was finally decided to place it on deposit in the Bancroft Library, if the rules of that institution so permitted.

Mr. Coggins read an entertaining and interesting communication he had recently received from Mr. Witmer Stone, of Philadelphia. Adjourned.—H. S. SWARTH, *Secretary*.

MARCH.—The March meeting of the Cooper Club was held on March 31 and April 1, in conjunction with the first annual meeting of the Pacific Association of Scientific Societies. The business meeting was held on the evening of March 31, at the Mint Restaurant, San Francisco, with President Mailliard in the chair and the following members present: John Mailliard, Ernest Mailliard, J. Grinnell, W. P. Taylor, O. Heinemann, H. Coggins, W. K. Fisher, C. Littlejohn and H. W. Carriger; and with E. A. McIlhenny as a visitor.

The minutes of the previous meeting were read, and approved as read, followed by reading of the minutes of the Southern Division. The secretary was instructed to cast a ballot electing to membership in the Club the following, whose names were proposed at the last meeting: F. M. Lane, Fresno, Cal.; Nita A.

Blayney, Fresno, Cal.; Reginald C. Barker, Blackwater, Ariz.; Owen Durfee, Fall River, Mass.; Robert Barbour, Montclair, N. J.; H. Nehrling, Gotha, Florida.

The following proposals for membership were read, to be acted upon at the next meeting: Elizabeth B. Davenport, Brattleboro, Vt.; J. F. Frazier, Audubon, Iowa; Roy Norris, Richmond, Indiana; S. S. Dickey, Waynesburg, Pennsylvania; W. B. Mershon, Saginaw, Mich.; Frank O. Pilsbury, Walpole, Mass.; J. H. Trumbull, Plainville, Conn.; A. D. DuBois, Ithaca, N. Y.; Rowena A. Clarke, St. Louis, Mo.; F. H. Kennard, Newton Center, Mass.; Juliette A. Owen, St. Joseph, Mo.; P. B. Philipp, New York; Eugene E. Caduc, Boston, Mass.; Joseph Parker Norris, Philadelphia, Pa.; W. J. Hoxie, Savannah, Ga.; J. M. Edson, Bellingham, Wash.; W. T. Shaw, Pullman, Wash.; H. J. Rust, Coeur d'Alene, Idaho; J. F. Stephens, Lincoln, Neb.; F. H. B. Jordan, Lowell, Wash.; F. Kernode, Victoria, B. C.; all presented by A. B. Howell; Miss Louise Kellogg, Oakland, Cal., proposed by J. Grinnell; and Carl Mueller, Marysville, Cal., proposed by W. Lee Chambers.

Mr. Grinnell reported that the authorities of the Bancroft Library had expressed their willingness to have the manuscript of Belding's "Water Birds of California" (the property of the Club) deposited in the library, and it was decided to do so.

Mr. W. P. Taylor reported on the actions and progress of the Pacific Association of Scientific Societies. A report was received from Mr. Roswell Wheeler on the condition of certain mounted birds, the property of the Club, now in an Oakland school.

Certain changes in the new Club Constitution, suggested by the Southern Division, were read and discussed, and the matter was referred to the committee that originally had the matter in charge. Letters were read from Dr. R. W. Shufeldt, Mr. G. S. Guion, and Mr. Witmer Stone; and Mr. McIlhenny and Mr. Littlejohn entertained the Club with accounts of their Alaska experiences.

On the afternoon of April 1 the Club met in California Hall, University of California to listen to an illustrated lecture by Dr. W. K. Fisher on the bird colonies of Laysan Island. He was followed by Mr. H. L. Coggins who spoke on "An Apology for Popular Ornithology". Owing to the absence of Mr. Loye Holmes Miller, his paper on fossil birds was read by title. After these lectures, which were open to the public, the Club members met informally in the Museum of Vertebrate Zoology. In the evening most of the members attended the general meeting of the Pacific Association of Scientific Societies.—H. W. CARRIGER, *Secretary, pro tem.*

For Sale, Exchange and Want Column.—In this space members of the Cooper Club are allowed one notice of about 35 words in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. Notices must be written plainly, on one side only of a clean sheet of paper. For this department address W. LEE CHAMBERS, *Eagle Rock, Cal.*

If your subscription or dues are delinquent please remember the management needs the money to meet current bills, and send the cash in at once.

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OSPREYS WANTED—I, 2; III, 8, 9, 10; IV, 3; V, 7, 9; N. S., 3, 4. Will pay \$6.00 for Bird-Lore I; II, III. LAUREN TREMPER, *136 No. Dewey St., Philadelphia, Pa.*

WANTED—Audubon, Ornith. Biography, vols. 2, 4, 5; Nuttall, Manual, 1840, 2 vols.; Bull. Cooper Club, I, no. 1; Bird Lore, vol. II, no. 2; and others. Also bird skins. B. H. SWALES, *Grosse Ile, Mich.*

WANTED—Wilson Bulletin 2, 4; The Oologist, Utica, N. Y., vol. I complete; II, 1, 2; III, 8, 9; IV, complete; V, complete; Bulletin of the Cooper Ornith. Club, vol. I, odd nos. W. LEE CHAMBERS, *Eagle Rock, Cal.*

FOR EXCHANGE—At a bargain, sets and singles of such species as Northern Phalarope, Semipalmated Plover, Am. Rough-legged Hawk, Snowy Owl, Raven, Snowflake, Lapland Longspur, Tree Sparrow, Am. Pipit, Gray-cheeked Thrush, etc., because one or more eggs are imperfect or a part of the set has been destroyed. I collect sets of birds of prey *only*, but also desire living turtles and certain other reptiles. J. D. SORNBORGER, *Rowley, Mass.*

FOR SALE OR EXCHANGE—The following fine sets: Audubon's Ornith. Biography, 1831-39, 5 vols. complete. Audubon's Synopsis of Birds of America, 1839; Nuttall's Manual, orig. ed., 1832-34, 2 vols. complete. *Wanted:* The Auk, vols. 1, 2, 3 and 6; The Osprey, new series, vol. 1; Swainson and Richardson's Fauna Boreali-Americana. CHARLES R. KEYS, *Mt. Vernon, Iowa.*

WANTED—Nidologist: Vol. I, all except no. 9; Vol. III, no. 12; Osprey: Vol. I, nos. 2, 4, 6, 8, Vol. IV, no. 3, Vol. V, all nos.; Condor: Vol. I, no. 2; Auk: Vol. IX, no. 3, and other whole volumes. Cash or sets offered. DR. T. W. RICHARDS, U. S. NAVY, *1911 N Street, N. W., Washington, D. C.*

WANTED—First-class sets, any variety, of Pine Grosbeak; Hermit, Mangrove, Orange-crowned, Tennessee, Sennett, and Connecticut Warblers; Salt Marsh Yellow-throat and Belding Yellow-throat; Oregon, Alaska, Gray, Texas and Blue-eared Jay, Spotted Owl. E. ARNOLD, *Freight Claim Agent, Grand Trunk Ry., Montreal, Canada.*

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WANTED FOR CASH—In original covers, clean and in perfect condition for binding: Wilson Bulletin, nos. 4, 6, 7; The Osprey (new series), vol I, 1902, no. 7; The Oologist, vol. III (1886), no. 4, vol. IV (1887), nos. 1, 3, 4; vol. V (1888), no. 6, vol. VI (1889), no. 4, nos. 139 and 266; The Journal of the Maine Orn. Soc., vol. IV, nos. 2, 3, 4, vol. V, nos. 1, 4; The Iowa Ornithologist, vol. II, nos. 1, 2, 4, vol. IV, nos. 1, 2, 3, 4.—G. H. MESSENGER, *President Linden Bank, Linden, Iowa.*

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THE CONDOR

A Magazine of Western
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Volume XIII

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Number 4



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Volume XIII

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Number 4

A SYNOPSIS OF OUR KNOWLEDGE CONCERNING THE FOSSIL BIRDS OF THE PACIFIC COAST OF NORTH AMERICA

By LOYE MILLER

PREVIOUS to the discovery of the Pleistocene beds at Rancho La Brea only three localities on the Pacific Coast of North America had yielded any information regarding fossil birds. Of these three localities two were represented by but a single bone each.

Since the exploration of the Rancho La Brea deposits brought out the importance of the subject, avian fossils from four other localities have been studied, making thus a total of eight different horizons which now contribute to our knowledge of the birds of previous geological time.

In 1894 Cope (1) described the new pelecanid form *Cyphornis magnus* from a single bone taken in the Eocene of Vancouver. This specimen probably represents the largest known bird of flight.

Lucas (2) in 1901 described from the upper Miocene of Los Angeles the flightless diver *Mancalla californicus*, represented by the major part of a humerus.

All the other known specimens are from the Pleistocene of Oregon and California. Fossil Lake in Oregon is a lacustrine deposit. The Rodeo formation on San Francisco Bay is littoral marine, three localities in middle and northern California furnish cavern deposits, while the great mass of material from Rancho La Brea represents animals entrapped in soft asphalt.

The Fossil Lake beds yielded to Cope (3), to Shufeldt (4) and to Miller (5) fifty-two species of birds, the large majority of which were recorded by Shufeldt. Of these species 67.3 per cent are still living. All except one belong to recent genera.

The results thus far published on the Rancho La Brea collections by Miller

(6, 7, 8, 9) yield twenty-three species, all but eight of which still live. Three new genera of Raptore are represented and one new family is represented by the anomalous *Teratornis merriami*.

The discussion of the other four horizons is still in manuscript by Miller, and further study is required before publication. Results which are conclusive, however, though thus far unpublished would raise the number of fossil species known to the coast to the total of one hundred and fifteen. Of these 19.1 per cent are now extinct.

Anomalies in distribution are noticeable in the record of *Phoenicopterus* in Oregon by Shufeldt, and of *Sarcorhamphus*, *Catharista*, *Pavo*, *Ciconia* and *Jabiru* from Rancho La Brea by Miller. It will be noticed that most of these anomalies are cases of genera now more southern in their distribution.

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A COLLECTION OF WINTER BIRDS FROM TRINITY AND SHASTA COUNTIES, CALIFORNIA

By LOUISE KELLOGG

IN FEBRUARY of this year Miss Alexander and the writer undertook a month's trip into Trinity County, partly as a preliminary survey for further work during the summer, and partly because we wanted to see how much and what kind of a collection of birds and mammals a person could make in the mountains in the winter. Hopes were entertained of getting all sorts of unusual birds that might come there as winter visitants, and in one respect at least these hopes were realized in the finding of the Bohemian Waxwing. Then, too, we had an interest in seeing what the winter pelage of such small mammals as do not hibernate might be.

We went from Redding by stage to Weaverville over the snow-covered Trinity divide, and hearing there that a good trapper was working at Helena we went on some eighteen miles farther to that town, if such it may be called, which is situated at the junction of the Trinity River and its North Fork. The town consisted merely of a hotel, a store and a couple of houses, and it was interesting to find that it was a settlement of native sons and daughters, whose parents had been drawn there by the gold excitement of earlier days. The narrow canyon of the North Fork opens out enough to make a little farming possible; but the wooded hills are close on every side and higher mountains are in sight just beyond. The life zone was considered high Upper Sonoran, some of the principal trees and shrubs being

the digger pine, Douglas fir, oaks, ceanothus and poison oak. After some cold, snowy days, the weather was delightful and we put in two weeks here, devoting most of the time to getting small mammals, but meanwhile collecting and observing birds.

From Helena we went back by way of Weaverville and stopped off at Tower House, in Shasta County, at the lower end of Clear Creek valley and about eighteen miles from Redding. It stormed during most of our week's stay but we managed to get enough specimens to keep busy. As a result of the trip we have decided that winter collecting in the mountains is very enjoyable as well as very much worth while.

All of the specimens were collected for the Museum of Vertebrate Zoology of the University of California, and the numbers where cited are those of the bird collection in that institution.

Oreortyx picta picta. Mountain Quail. Quite numerous at Helena on dry, brushy south slopes. Specimens taken, nos. 17299-17302, are distinctly of the coast form.

Lophortyx californica vallicola. Valley Quail. One flock was seen each time we passed a certain wild rose thicket on the road, near a ranch about four miles above Helena. The one specimen taken, no. 17303, is unquestionably *vallicola*. At Tower House they came close around the buildings and were seen feeding with the chickens.

Dendragapus obscurus fuliginosus. Sooty Grouse. Some were seen on the high ridges at Helena by the trapper, Mr. Knowles; but the two specimens obtained, nos. 17304, 17305, were sent by him from Hay Fork, in the southern part of the county, after our return. These specimens are clearly of the northwest coast race.

Astur atricapillus striatulus. Western Goshawk. One adult specimen, no. 17306, sent in from Hay Fork by Mr. Knowles.

Dryobates villosus hyloscopus. Cabanis Woodpecker. An example, no. 17307, was shot by one of the men in the orchard at Helena.

Dryobates pubescens gairdneri. Gairdner Woodpecker. Two specimens taken, one, no. 17308, at Helena, and one, no. 17309, at Tower House; in size and dark coloration of the breast these both resemble more closely typical *gairdneri* than the lighter form *turati*.

Sphyrapicus ruber daggetti. Red-breasted Sapsucker. Reported common during the summer, the trees in the orchard bearing abundant evidence of their presence. Two specimens taken at Helena, nos. 17310, 17311.

Phloeotomus pileatus abieticola. Northern Pileated Woodpecker. One was seen by Mr. Knowles at Helena, and he afterwards sent in one from Hay Fork.

Colaptes cafer collaris. Red-shafted Flicker. Very common at Tower House where they fed on the ground in the orchard.

Sayornis nigricans. Black Phoebe. Only one seen, at Tower House, March 2.

Cyanocitta stelleri frontalis. Sierra Nevada Jay. Not particularly numerous. The two taken, nos. 17316, 17317, at Helena, are not exactly *frontalis*, being clearly intermediate in coloration towards *carbonacea*.

Apelocoma californica. California Jay. Only two or three noted.

Hesperiphona vespertina montana. Western Evening Grosbeak. We saw none at all ourselves but on our return through Weaverville Mr. Hupp gave us one specimen which he had shot out of a large flock in the trees in front of his house. He had been born and raised in Weaverville, and had been in all parts of the

county both summer and winter, and said he had never seen these birds before. The specimen, no. 17319, is peculiar in having the whole back of the head yellow, instead of the usual restricted frontal band of that color.

Carpodacus purpureus californicus. California Purple Finch. Seen only at the ranch four miles above Helena.

Spinus pinus. Pine Siskin. A large flock was seen once at Helena, another in crossing the Trinity divide beyond Lewiston, and another at Tower House.

Passer domesticus. English Sparrow. These birds have invaded Weaverville, which is fifty-five miles from the railroad; and a small colony was preparing to nest at Tower House.

Zonotrichia coronata. Golden-crowned Sparrow. Seen in flocks together with the Intermediate Sparrow, but not as numerous as the latter.

Junco oreganus thurberi. Sierra Junco. Large flocks of juncos were common everywhere.

Melospiza melodia merrilli. Merrill Song Sparrow. Four specimens, one from Helena and three from Tower House, have been referred to this species rather than to *rufina* on account of the heavy, blackish streakings of the back, and the less diffused and darker streaking of the breast; they are also slightly grayer dorsally than *rufina*. In as much as they exhibit some tendency toward the more narrow and sharply defined streaking of *montana*, this may be considered as further evidence that there is intergradation between *montana* and *rufina*, the name *merrilli* having been applied to some such intergradient form.

Melospiza melodia rufina. Rusty Song Sparrow. Seven specimens, three from Helena and four from Tower House. Compared with breeding birds from Vancouver Island which have been referred to *rufina*, they are practically identical although according to the currently stated distribution of *morphna* they should be that form. In view of the facts that the two previously recognized forms (*rufina* and *morphna*) are attributed to parts of the same geographic area, and that no appreciable differences are to be found, throughout the whole area, it is to be inferred that there is only one form—*rufina*.

Passerella iliaca unalaschensis. Shumagin Fox Sparrow. One specimen, no. 17351, from Helena.

Passerella iliaca meruloides. Yakutat Fox Sparrow. Fox Sparrows were quite numerous at Tower House in manzanita brush along the edge of an irrigation ditch. One example of this form taken, no. 17352.

Passerella iliaca megarhyncha. Thick-billed Fox Sparrow. Most common.

Pipilo maculatus megalonyx. Spurred Towhee. More towhees were seen at Tower House than at Helena; at the latter place the two kinds were quite common.

Pipilo crissalis crissalis. California Brown Towhee. Seen at the ranch four miles above Helena, but more numerous at Tower House. The three specimens preserved, nos. 17359-17361, are slightly grayer and larger than *crissalis* from the San Francisco Bay region. There may yet be found sufficient grounds for the recognition of a northern form, *P. c. carolae* McGregor (Bull. Cooper Orn. Club I, 1899, p. 11), though the material as yet available does not warrant it.

Bombycilla garrula. Bohemian Waxwing. It was a great pleasure and surprise to encounter this picturesque bird. A large flock was seen near Tower House on our way in to Weaverville and a dead one picked up in the road; also on our return we saw at Tower House what was presumably the same flock. At Helena the birds came in to the orchard in the afternoon to feed and roost for the night in the trees. They seemed especially fond of the rotten apples left on the trees or fallen

on the ground, and they showed so little fear that it was possible to approach within a few feet of them, and when one got too close they would only fly up into the trees nearby. They kept up an incessant soft twittering noise, and for several days we had excellent opportunities for observing them at close range, until the throwing of some apples into their midst caused them to fly off, and they did not return before we left. Nine specimens were preserved, nos. 17362-17370.

Vireo huttoni. Hutton Vireo. Only seen once at Helena, mingling with a flock of chickadees.

Thryomanes bewicki drymoeus. San Joaquin Wren. Not at all common; specimen taken at Helena, no. 17372, is slightly darker than average *drymoeus*, being somewhat intermediate towards *calophonus*.

Baeolophus inornatus inornatus. Plain Titmouse. Several noted at Tower House.

Penthestes rufescens rufescens. Chestnut-backed Chickadee. Quite common at Helena.

Chamaea fasciata henshawi. Pallid Wren-tit. Less numerous at Helena than Tower House, where their song was most noticeable on bushy hillsides. A series of fourteen was taken, nos. 17376-17389. It is interesting to note that these are the very light interior form rather than, as would seem more natural, the darker coast form.

Psaltiriparus minimus minimus. Bush-tit. One flock was seen at Tower House and three specimens were taken. Near topotypes examined, from Salem, Oregon, show a light pileum but the back and breast not appreciably so. Specimens from Pasadena have pileums as light as the topotype; but others are dark and in no case does a decidedly light back accompany the light pileum. Specimens from Horse Creek, Siskiyou Mountains, have a dark pileum like that of those from Tower House, so that, with such a range of variation, it would seem the more reasonable course at the present time to consider the sub-species *californicus* is not well established.

Regulus calendula. Ruby-crowned Kinglet. Not common at either locality.

Myadestes townsendi. Townsend Solitaire. Numerous at Tower House.

Hylocichla guttata nana. Dwarf Hermit Thrush. Seen quite often, so considering their retiring habits they must have been quite common.

Planesticus migratorius propinquus. Western Robin. Common at both localities.

Ixoreus naevius. Varied Thrush. Quite common at both localities, with robins, but not as easily approached.

Sialia mexicana occidentalis. Western Bluebird. Large flocks seen at Tower House.

NESTING NOTES ON THE DUCKS OF THE BARR LAKE REGION, COLORADO

By ROBERT B. ROCKWELL

PART I

THE most important subject which confronted us, when we began a three years' study of the nesting birds of the Barr Lake country north of Denver, was that of determining the status of the different species of ducks as

breeders.* Definite information on the subject, covering the plains region east of the foothills, was practically a negligible quantity. The general impression conveyed by text-books was that the extreme southern limit of the breeding range of most of the ducks lay far to the north of Colorado. Cooke in his final supplement of "Birds of Colorado" gave the first published intimation that this range might eventually be extended far to the south, and our work in this section verified the intimation.

The results of systematic work brought to light many interesting and confusing facts, for we not only encountered many new peculiarities in nesting habits, but were also fortunate enough to collect data which established two species as breeders, whose status had heretofore been undetermined. A few species, e. g., the Mallard, Blue-winged and Cinnamon Teal, Baldpate, Shoveller, Gadwall and Ruddy Duck had already been definitely established as breeders on the plains. Of these we found the two species of teal nesting commonly, in fact the Blue-wings might be



Fig. 37. NESTING SITE OF MALLARD ON MUSK-RAT HOUSE

considered abundant breeders; the Ruddy a rather uncommon breeder; persistent searching netted us only two nests of the Mallard and one of the Shoveller, although the birds were present in considerable numbers throughout the nesting season; and the most careful field work failed to reveal a single nest of the Baldpate or Gadwall, although these birds were also fairly common. The Green-winged Teal was seen in some numbers, but we found only one nest which we could assign positively to this species.

One of our most interesting discoveries was that the Pintail, which had hitherto been considered a rather rare breeder in the state, was, next to the Blue-winged Teal, the most common breeding duck in the Barr Lake country.

The most important result of our work, however, was in establishing the Red-head and the Canvasback among Colorado breeding birds. In order to prevent repetition it will no doubt be advisable to arrange the data according to species, rather than to treat the various ducks indiscriminately. In the following notes

* All the notes upon which this paper is based were taken in company with L. J. Hersey.

several species are omitted, as I have endeavored to include in these notes only such data as will add to the general fund of information on this subject.

MALLARD (*Anas platyrhynchos*)

During our numerous trips through the Barr Lake district we found the Mallard one of the commonest ducks. A very large flock wintered on the larger lakes; during spring and fall migration flocks of Mallards were always in evidence, and during the summer months pairs and single birds were quite common. It was therefore rather surprising that despite careful and persistent searching, we found but two nests of this species during three seasons' work. Both of these, however, were quite out of the ordinary and are worthy of description.

On May 11, 1907, while wading out from shore through a sparse, burnt-over



Fig. 38. MALLARD'S NEST ON MUSK-RAT HOUSE, SHOWING DETAILS OF NEST CONSTRUCTION

growth of cat-tails, skirting a small lake, a female Mallard flushed noisily from a large musk-rat house and revealed a beautiful set of eleven eggs deposited in a hollow, scraped in the dead cat-tails and debris forming the house, and well lined with down. The house was very conspicuous, standing over two feet above the surface of the water surrounding it, and the nest was an open one as can plainly be seen from the accompanying illustration (Fig. 37). There was no apparent attempt at concealment. The female flushed when we were fully thirty yards from the nest, and the male swam about well out of gunshot.

A week later (on the eighteenth) we succeeded in approaching to within ten feet of the brooding female, who was in plain sight even from a considerable distance. The nest was in much the same condition as on the preceding visit, but the downy lining was much less in evidence. On the twenty-fourth we found that

the musk-rats had been adding to the house, with the result that the mother bird, in order to keep her treasures from being buried, had been forced to move her nest over toward the edge of the pile. In fact four of the eggs were missing on this date, and we surmised that they had been pushed off into the water during the moving process. A week later (May 31) the house had been built up much higher, and the nest was on the ragged edge of the pile with the eggs apparently far advanced in incubation. On June 8 the eggs had been hatched, and in our examination of the nest we were surprised to find the four missing eggs deeply buried in the debris at almost the exact spot where the nest was located when first found.

A fascinating bit of the family history would have undoubtedly been revealed had we been enabled to observe the attitude of the busy musk-rats toward the brooding mother bird, and the process of moving the nest.

The second nest was found June 13, 1908, over a month later in the spring than the first nest was found. Some slight experience with nesting Mallards in Nevada had taught me to look in high and dry locations for their nests and I was therefore greatly surprised to have a female Mallard flush from almost beneath my feet while crossing a low swale. The nest was built in rather a dense growth of dead cat-tails, tender green shoots and scattered young willows on ground formerly swampy, but at that time almost dry. It was a beautifully built basket-like structure of dried cat-tail blades with very little of the usual down in the lining, and remarkably well concealed. We passed within three feet of the brooding female at least twice before she flushed. During the following week the district was visited by a heavy hailstorm and on our next visit we found that the marsh had filled with water and that the nest had been drowned out and deserted.

BLUE-WINGED TEAL (*Querquedula discors*)

By far the most abundant nesting duck throughout the Barr district was the pretty little Blue-winged Teal. No matter what type of ground our searches carried us over, we were sure to be startled by the occasional flutter of wings, as a dainty little gray-clad mother left her nest like a flash upon our too close approach. We found nests of these birds in the dense cat-tail growth along sloughs, on the soggy, spongy seepage ground under the big dykes, at the edge of beaten paths near the lake-shore, by roadsides back from the water, among the dry weeds and sand of the prairie, far from the water's edge, amid the dense rank grass on a tiny island, in alfalfa fields, on grassy flats, and in cavities in and upon musk-rat houses.

The nests exhibited a wide diversity in construction. The predominating type was a neat basket-like structure composed of fine soft dead grass, sometimes set well into a dense clump of rank grass on the surface of the ground, and sometimes sunken into a cavity until the top of the nest was flush with the surface of the ground. These nests were usually liberally lined with down; much thicker on the sides and rim of the nest than on the bottom. In fact several were examined which had no down whatever underneath the eggs. The quantity of down varied greatly in different nests, but apparently increased in quantity as incubation advanced.

A less common type of nest was made entirely of bits of dead cat-tail blades deep-set into a cavity in the ground. This type of nest was usually found in marshy places, where this material was more available, and in these there was much less of the downy lining. The concealment of these nests was likewise less effective, and taken as a whole this type of nest was altogether inferior. We found a few built in wet places where the foundation of the nest was actually wet, but we did

not find a single nest where the eggs were the least bit damp; and the large majority were in perfectly dry locations in close proximity to water.

The concealment of the better built nests, especially those in the center of a tussock of rank grass, was well nigh perfect; in fact in most cases we were unable to see either the brooding bird or the eggs from a distance of five or six feet even when we knew the exact location of the nest. Upon leaving the nest during incubation the parent covered the eggs with the downy rim of the nest and the concealment thus afforded was remarkable.

We found nests exhibiting every possible degree of skill in construction, but whether the nest was a rude affair of grasses and trash scraped into a little hollow in the ground; or whether it was a beautifully woven basket-like structure deeply set into a soft cradle of rich grass, and luxuriously lined with an abundance of soft gray down from the parent's breast, we invariably encountered the strong mother instinct characteristic of all wild ducks. The brooding parent seldom left her nest until we were within three or four paces of her, and often we approached to within arm's length. In one instance where the parent had become somewhat accustomed to me I actually touched the bird's back before she flushed.

Several farmers living near the lakes told us of killing or maiming the brooding birds with mowing machines while cutting the first crop of alfalfa. This remarkable attachment to the nest is all the more wonderful when one considers the difficulty of getting within gunshot of these birds during the open season, which in Colorado extends to April 5, scarcely more than a month before the birds begin to lay. It is, however, very interesting to note how quickly all the ducks (and more particularly the teal) recognize the protection of the closed season. Late in May one may stroll along the shores of the smaller lakes and watch from one to five hundred ducks swimming about within a hundred yards or so, without exhibiting any particular fear of the intruder, whereas six weeks earlier his distant appearance would be greeted with a roar of wings.

Several radical departures from the characteristic habits were encountered.

One bird had built her nest on a little flat amid some short blue grass which afforded her no concealment whatever. As she brooded her eggs she was plainly visible at a distance of twenty yards or more. She allowed me to approach to within four or five feet and set up my camera for an exposure; and then instead of springing lightly into the air as usual, she ambled awkwardly off the nest, waddled slowly between the legs of my tripod, uttering lazy little quacks of protest, and finally after walking a distance of thirty yards or more took flight.

While ploughing our way through a dense cat-tail swamp in water above our knees we frightened a teal from a nest in a musk-rat house. A careful search finally revealed the eggs fully a foot back from the entrance of a deep cavity in the side of the house. To our surprise the nest contained four eggs of the teal and five eggs of some big duck, all of which were incubated.

Another queer nest was found, which was a shallow depression on the side of a dilapidated musk-rat house, which had been originally built between a fence post and its diagonal brace. The lower barbed wire of the fence prevented the top of the house from collapsing, while the side weathered away, leaving a cavity well protected by the overhanging top. In this cavity without a sign of lining or a bit of concealment lay the ten conspicuous white eggs. They could be readily seen from a distance of twenty yards.

Another beautifully built and concealed nest with eleven eggs was just a fraction less than three feet from a nest where a patient little mother Spotted Sandpiper brooded her four eggs.

One set of nine eggs in a beautifully built nest at the side of a neglected road was visited by some animal which had made a small hole in the side of each egg and had sucked the contents.

The Blue-winged Teal are among the last ducks to arrive from the south in the spring, seldom being seen in any numbers before April first, and the great bulk of the birds arrive about the middle of April. The birds are mated, and the flocks for the most part scattered by the middle of May, and the first signs of nesting are usually found during the third week in May. The earliest complete set found by us was a beautiful set of eleven eggs on May 24, 1908. This nest must have been completed and laying begun by May 13. The average date for complete sets is about June 1. We found complete sets of fresh eggs as late as July 21, from which we infer that a second set is laid when the first one is destroyed. The



Fig. 39. NESTING SITE OF CINNAMON TEAL, SHOWING METHOD OF CONCEALMENT

majority of sets watched by us hatched during the third week in June, but two nests were found from which the young had gone by June 8.

We tried repeatedly to satisfy ourselves that an egg was deposited each day, and finally on June 11 a nest was found containing one egg, and seven days later the same nest contained eight.

The birds were very sensitive to any disturbance of the eggs and on this account we did not dare to handle or touch them, except when absolutely necessary. This prevented us from ascertaining whether or not incubation began after the first egg was laid; but from the fact that the entire clutch usually hatches on the same day and the young ones leave the nest as soon as they are dry, it is highly improbable that the female undertakes the duties of incubation until the comple-

ment is complete. In fact we seldom flushed the parent bird from nests containing incomplete sets, although a good many such were found.

Complete sets ranged in number from seven to twelve. The sixteen nests of which we kept a definite record contained the following sets: one of twelve, six of eleven, one of ten, two of nine, five of eight, and one of seven. These were only a fraction of the total number of nests found, but a fair estimate of the average clutch in all the nests examined would be nine or ten eggs.

The first brood of young birds was found June 22, and on July 5 and 6 several broods of half grown young were seen. The hiding instinct of the ducklings during the downy period is little short of miraculous. One fond mother bird which flushed almost from between my feet in a wet grassy meadow left eight tiny brown balls of down in plain sight within arm's length of me; yet after they had scamper-



Fig. 40. THE SAME NEST AS THAT SHOWN IN FIG. 39 WITH CONCEALING VEGETATION REMOVED

ed to shelter fifteen minute's careful search brought to light only three babies, although I knew that the remaining five must be hiding within a radius of four or five feet.

When flushed from a brood of young ones the mother bird employs all the arts known to birddom to entice the intruder away from her babies; fluttering through the grass, feigning a broken wing, and uttering low cries, utterly un-duck-like in tone.

The mother duck stays with her brood at least until they are full grown and on the wing. One devoted mother who was surprised by us in a narrow lagoon with her brood of five three-fourths grown ducklings, courageously swam back and forth in front of us, and not twenty-five feet distant, endeavoring to distract our

attention from her charges, while the youngsters, instead of scurrying to shelter seemed rather to enjoy the anxiety of the mother and the excitement of our intrusion.

The young birds learn to fly very slowly, and the shameful slaughter of "flappers" (as the young are called when unable to fly) upon the opening of the hunting season September 10, is another testimonial of the legislative farce of game laws framed by politicians.

CINNAMON TEAL. (*Querquedula cyanoptera*)

Owing to the strong resemblance between females of the Blue-wing and Cinnamon Teal, and the rapidity with which they left the nests when flushed, it was extremely difficult to identify the birds as they took flight. We were consequently much handicapped in our study of the Cinnamon Teal, and the total number of nests positively identified as belonging to this species was only four, although we undoubtedly examined many others belonging to this species without being able to identify the parent beyond doubt.

This small amount of data is altogether insufficient to warrant any general statements, but in the four nests examined we were unable to detect any radical departures from the habits already attributed to the Blue-wings except that two of the four nests were in very wet locations, where the eggs were in constant danger of becoming damp. These two nests were practically devoid of the downy lining while the other two nests, which were built in perfectly dry locations were warmly lined with down. The handsomest nest of the four, which was one of the nests on wet ground, was figured in the CONDOR (Vol. XI no. 4, page 112.) and contrasts sharply with the one shown in the accompanying cut, which is one of those in a dry location.

One of the nests was on dry prairie fully one hundred feet back from the shore of the lake amid a fairly thick growth of weeds and grass. This nest which was found May 30, 1908, was well built and warmly lined with down, and the bird was quite fearless. We watched the nest closely and on June 19 were surprised to find that seven of the young birds had pecked through the shell, but had died before clearing the shell around their heads. The other four eggs contained perfectly formed dead embryos which had not begun to pip the shells.

The male birds, however, in their brilliant cinnamon coats were very conspicuous and we were occasionally able, through their actions, to connect them with the nests we had under examination.

Male Cinnamon Teal were common throughout May and continued to increase in number until June first, and during this month they were seen in large numbers. In fact we arrived at the conclusion that they were breeding throughout the Barr district in probably half the numbers that the Blue-wings were, and we regretted exceedingly that the peculiar resemblance between the two species prevented us from gathering sufficient information to establish any peculiarities in nesting habits that might exist, but this would only have been possible by collecting an extensive series of the birds as they flushed from the nests; a proceeding which we considered altogether unwarranted.

WINTER BIRDS OF THE SALTON SEA REGION

By A. VAN ROSSEM

THE species listed here were taken during the six weeks between December 1, 1910 and January 14, 1911. Localities worked were Brawley, about fifteen miles southeast of Salton Sea, Alamoria, five miles north of Brawley, and Mecca on the west end of the Sea and about a mile from it, making a very convenient base from which to work the Sea and surrounding country. The Alamo River running near Brawley on its way to Salton, and the country closely adjacent form an ideal collecting ground, and on the whole the most productive one worked.

The river itself is a muddy stream from thirty to fifty yards wide and runs in the channel carved by the Colorado on its recent outbreak, which formed the new Salton Sea. The steep, almost perpendicular banks are washed out in many places, resulting in gulleys often running back a mile or more and supporting such growth as dwarf cottonwoods and weeping willows. Near the outlet where worn down to the river's level, tule bordered inlets are the result, attracting such species as the Desert Song Sparrow, Tule Wren, and Western Yellowthroat. The country about is as flat as a table, and at some time most of it has been cleared and then abandoned. Now a dense growth of "inkweed" has sprung up and it is difficult to distinguish it from the natural desert about. There is also a little mesquite but not nearly as much as at Mecca.

Here are found the typical desert birds, Leconte and Crissal thrashers, Plumbeous Gnatcatchers, Roadrunners and Cactus Wrens. Nearer the towns of Brawley and Alamoria the whole country is a network of canals and irrigation ditches, and in planting time, flooded meadows. These last make a handy and convenient larder for the thousands of ducks for which Imperial Valley is noted, as well as Sandhill Cranes, Ring-billed Gulls and several species of shore birds.

I was much interested in the feeding time of the different birds which came from Salton to the grain fields. The ducks all fed at night, arriving in the fields about dusk and leaving usually before daylight for the safer Sea. There was no definite time though, as flocks could be heard coming and going at all hours of the night. But the Sandhill Cranes were as regular as the clock, passing over my tent every morning from 7:00, the earliest to 7:15, the latest, returning just at sundown. Gulls and other shore birds did not come until late, usually about 8:00 and leaving as early as four in the afternoon.

At Mecca were found many species either rare or entirely absent from the other end of the Sea, perhaps on account of the slightly cooler climate. Fine drizzles fell three times during my stay there. The greater attraction was undoubtedly the mistletoe, which at this time was covered with berries furnishing food for the Phainopeplas, Bluebirds and Robins. Cover, too, was more plentiful, several planted rows and groves of cottonwoods and much native mesquite.

Two species to be expected, the Sage Thrasher and Desert Sparrow were entirely missing. There were also several surprises, the most noteworthy being the English Sparrow, quite a little colony of a dozen pairs or more having established itself at Brawley about the main street and freight depot. No one seemed to know anything of their time of arrival.

Salton Sea is rapidly drying up, and for a mile from the present shore line is a stretch of white, even the bases of the dead mesquites and bushes being crusted with alkali. The Farallon Comorants prefer to build in the tops of the trees about

fifteen or twenty yards out and one can see where the water has been for two springs previous by the old nests now high and dry.

Following is a list of the birds collected, or noted where identification is positive.

1. *Æchmophorus occidentalis*. Western Grebe. About a dozen individuals, well out to sea on January 8, were exceptionally tame and unsuspicious.

2. *Larus californicus*. California Gull. Abundant at the "neck" where the railroad trestle crosses the sea. Doubtless attracted by the refuse thrown from trains as well as by the swarms of fish which come for the same purpose.

3. *Larus delawarensis*. Ring-billed Gull. At Brawley large flocks fed every day in the flooded fields. All seen here were adults or nearing maturity, while at Salton nearly all seen were birds of the year. Not so common as the last.

4. *Phalacrocorax auritus albociliatus*. Farallon Cormorant. Abundant at Salton Sea. A favorite roosting place was the partly submerged telephone poles, though the tree-tops about a quarter of a mile out were well occupied.

5. *Pelecanus erythrorhynchos*. White Pelican. Seen almost every day at Brawley in large flocks, and at Salton Sea. As early as January 8 they had begun to pair and by the thirteenth couples formed the majority.

6. *Anas platyrhynchos*. Mallard. Seen only at the Alamo River in threes and pairs, usually in quiet inlets.

7. *Mareca americana*. Baldpate. Three noted in a market shipment December 25.

8. *Nettion carolinense*. Green-winged Teal. Small flocks of from four to eight seen on the Alamo, and one taken.

6. *Querquedula cyanoptera*. Cinnamon Teal. A male seen in the bag of a local hunter December 16.

10. *Spatula clypeata*. Shoveller. Perhaps the most common duck both at Brawley and Salton.

11. *Dafila acuta*. Pintail. Quite common at Brawley and on the Alamo. A few seen at Salton.

12. *Marila americana*. Redhead. One bunch of four on the Alamo River Dec. 4, and several others examined in market bags.

13. *Marila valisineria*. Canvas-back. One in a game shipment December 25.

14. *Charitonetta albeola*. Bufflehead. A flock of six, all females, at Salton Sea January 8.

15. *Erismatura jamaicensis*. Ruddy Duck. Several individuals noted at the river and one at Salton January 8.

16. *Branta canadensis* subsp? A flock of seven Canada geese passed close over my camp at Mecca January 12, but no specimens were taken.

17. *Ardea herodias treganzii*. Treganza Blue Heron. One seen at Brawley December 12. Abundant at Salton Sea.

18. *Nycticorax nycticorax naevius*. Black-crowned Night Heron. Fairly common at Salton but not in the numbers of the last.

19. *Grus mexicana*. Sandhill Crane. About a hundred, usually split into two or three flocks, passed over every morning about 7:00. On several occasions they were accompanied by a solitary White Pelican whether the same individual or not I could not tell.

20. *Rallus virginianus*. Virginia Rail. Two at least and perhaps three stayed about a tule grown spring, and were seen closely several times.

21. *Porzana carolina*. Carolina Rail. One killed in tules at the Alamo River, December 25.

22. *Fulica americana*. American Coot. One flushed from the tules along the Alamo December 4, was the only one seen.

23. *Gallinago delicata*. Wilson Snipe. Quite common on the mud flats at the edge of Salton Sea.

24. *Pisobia minutilla*. Least Sandpiper. Two specimens taken from a small flock in a grain field at Brawley December 8. No others seen.

25. *Ereunetes mauri*. Western Sandpiper. Quite common along the edge of the sea in small flocks.

26. *Totanus melanoleucus*. Greater Yellowlegs. Common from December 1 to December 25 in the flooded grain fields. None seen at Salton.

27. *Oxyechus vociferus*. Killdeer. Common near water.

28. *Lophortyx gambeli*. Gambel Quail. Abundant in large flocks everywhere, but very wild. A favorite place was in the mesquite thickets along the Alamo. One adult male taken at Mecca January 14 has no black belly mark, its place being taken by fine black scales, like the markings on a male Valley Quail, but slightly smeared.

29. *Zenaidura macroura carolinensis*. Mourning Dove. Fairly common in small flocks at Brawley and Alamo. None seen at Mecca.

30. *Cathartes aura septentrionalis*. Turkey Vulture. Quite common. A much used roost was a large eucalyptus grove near Brawley.

31. *Circus hudsonius*. Marsh Hawk. Common about cultivated fields. One adult male at Salton.

32. *Accipiter velox*. Sharp-shinned Hawk. One adult male at Brawley, December 25, the only one seen.

33. *Accipiter cooperi*. Cooper Hawk. Fairly common in the mesquite crowned ravines, along the Alamo.

34. *Buteo borealis calurus*. Western Redtail. Six individuals noted, five at Brawley and one at Mecca.

35. *Aquila chrysaetos*. Golden Eagle. One passed close overhead at Alamo December 18.

36. *Falco mexicanus*. Prairie Falcon. Two seen at Brawley, one chasing a Mourning Dove. At Mecca I had a quail snatched up within ten feet of me by one of these birds.

37. *Falco columbarius*. Pigeon Hawk. Several seen at Brawley in the cottonfields.

38. *Falco sparverius phalaena*. Desert Sparrow Hawk. Rather common at Brawley and Alamo. Rare at Salton Sea.

39. *Pandion haliaetus carolinensis*. Osprey. One seen on several occasions at Salton Sea where its favorite perch was a partly submerged telegraph pole.

40. *Aluco pratincola*. Barn Owl. One taken and two others heard. From the number of small rodents they should be abundant about Brawley, but for some reason they are almost entirely absent.

41. *Asio flammeus*. Short-eared Owl. Next to the Burrowing Owl, the most common Raptore. They seemed to take the place of the Barn Owl and often four or five would be flushed at once. Usually found in the driest places.

42. *Otus asio* subsp? A screech owl hooted every night at Brawley, but was too wild to be shot.

43. *Bubo virginianus* subsp? Horned owls were flushed from crannies in the sand cliffs on the Alamo on two occasions.

44. *Speotyto cunicularia hypogaea*. Burrowing Owl. Abundant everywhere in suitable locations.

45. *Geococcyx californianus*. Roadrunner. Fairly common, but from what I could gather it has been decreasing rapidly the last three years.

46. *Dryobates scalaris bairdi*. Texas Woodpecker. One specimen taken and three others seen at Mecca.

47. *Colaptes cafer collaris*. Red-shafted Flicker. Abundant in suitable cover, usually in small flocks of four or five.

48. *Aeronautes melanoleucus*. White-throated Swift. Common at Mecca, especially on the lake shore.

49. *Calypte anna*. Anna Hummingbird. One at Brawley December 18 and one at Mecca January 4 were the only ones noted.

50. *Tyrannus vociferans*. Cassin Kingbird. One taken at Brawley and one seen at Mecca.

51. *Myiarchus cinerascens*. Ash-throated Flycatcher. A male taken December 18 near Alamoria.

52. *Sayornis sayus*. Say Phoebe. Common everywhere.

53. *Sayornis nigricans*. Black Phoebe. Fairly common especially near Salton. Not so abundant as the last.

54. *Empidonax griseus*. Gray Flycatcher. Two taken at Mecca in the mesquites January 5.

55. *Pyrocephalus rubineus mexicanus*. Vermilion Flycatcher. One near Alamoria December 9 and another seen at Mecca January 3.

56. *Otocoris alpestris pallida*. Sonora Horned Lark. Common by roadsides and in cultivated fields about Brawley and Alamoria. That these were *pallida* is supposition only, but Mr. P. I. Osburn took some winter specimens of this form but a few miles away at Calexico and in the same valley in 1908.

57. *Corvus corax sinuatus*. Raven. Seen about every day usually in pairs.

58. *Corvus brachyrhynchos hesperis*. Western Crow. Common around the outskirts of Brawley, but not seen elsewhere.

59. *Molothrus ater obscurus*. Dwarf Cowbird. Quite common at Mecca in company with the Brewer Blackbirds.

60. *Xanthocephalus xanthocephalus*. Yellow-headed Blackbird. Common at Brawley.

61. *Agelaius phoeniceus sonoriensis*. Sonoran Redwing. Enormous mixed flocks of this and the last species raised havoc with the sprouting grain near Brawley.

62. *Sturnella neglecta*. Western Meadowlark. Fairly common in small flocks in cultivated fields.

63. *Euphagus cyanocephalus*. Brewer Blackbird. Common about the ranch houses and corrals.

64. *Carpodacus mexicanus frontalis*. House Finch. Seen only at Brawley in the small park near the station, and only about half a dozen individuals. Possibly more abundant before the advent of the English Sparrow.

65. *Astragalinus psaltria hesperophilus*. Green-backed Gold Finch. Small flocks noted on three occasions by the roadside near Alamoria.

66. *Astragalinus lawrencei*. Lawrence Goldfinch. Abundant especially along the Alamo in the mesquites.

67. *Poocetes gramineus confinis*. Western Vesper Sparrow. Abundant along irrigation ditches and fields.

68. *Passerculus rostratus*. Large-billed Sparrow. Three adults and four

birds of the year taken at a fresh-water spring surrounded by tules near Salton Sea.

69. *Chondestes grammacus strigatus*. Western Lark Sparrow. Common in cultivated districts and in Brawley.

70. *Zonotrichia leucophrys gambeli*. Gambel Sparrow. Abundant everywhere. Perhaps the most common bird.

71. *Zonotrichia coronata*. Golden-crowned Sparrow. Seemingly rare although many may have been missed in the large flocks of Gambels. One female juvenal taken December 18 the only one seen.

72. *Spizella breweri*. Brewer Sparrow. Common along weed-grown fences and in the cotton-fields.

73. *Amphispiza nevadensis*. Sage Sparrow. Abundant in dry bushy tracts.

74. *Amphispiza nevadensis canescens*. California Sage Sparrow. Associated with the last and in slightly larger numbers.

75. *Passer domesticus*. English Sparrow. About a dozen pairs in Brawley. As no old nests were observed about the buildings they are probably recent arrivals.

76. *Melospiza melodia fallax*. Desert Song Sparrow. Fairly common in the tules along the Alamo and at Salton Sea.

77. *Pipilo aberti*. Abert Towhee. Most abundant at Mecca in the mesquite thickets.

78. *Petrochelidon lunifrons*. Cliff Swallow. Common about reservoirs and flooded fields.

79. *Hirundo erythrogastra*. Barn Swallow. Usually to be seen with the three other species, mixed flocks being the rule. Both this and the last taken at Brawley on December 18.

80. *Iridoprocne bicolor*. Tree Swallow. Apparently the commonest swallow in all localities.

81. *Tachycineta thalassina lepida*. Violet-green Swallow. Not so common as the last.

82. *Phainopepla nitens*. Phainopepla. Abundant at Mecca feeding on the mistletoe berries.

83. *Lanius ludovicianus excubitorides*. White-rumped Shrike. Fairly common in all localities visited.

84. *Dendroica auduboni*. Audubon Warbler. Abundant everywhere.

85. *Geothlypis trichas occidentalis*. Western Yellow-throat. Fairly common but seemed to be confined to the tules.

86. *Anthus rubescens*. Pipit. Common along irrigation ditches and alkali flats at Salton Sea.

87. *Mimus polyglottos leucopterus*. Western Mockingbird. Heard one at Brawley. Common at Mecca.

88. *Toxostoma lecontei*. Leconte Thrasher. About a half a dozen individuals seen. Two secured December 9 and 16 showed no evidences of breeding.

89. *Toxostoma crissale*. Crissal Thrasher. Two taken at Alamoria. Quite common at Mecca.

90. *Heleodytes brunneicapillus couesi*. Cactus Wren. About a half dozen seen at each place visited.

91. *Thryomanes bewicki bairdi*. Baird Wren. Fairly common at Brawley and Alamoria.

92. *Thryomanes bewicki charienturus*. San Diego Wren. Two specimens at Mecca.

93. *Troglodytes aedon parkmani*. Western House Wren. But one noted, an adult at Mecca, January 7.

94. *Telmatodytes palustris paludicola*. Tule Wren. Confined to the tule patches along the Alamo and at Salton.

95. *Auriparus flaviceps flaviceps*. Verdin. Two noted at Alamoria. Abundant in the mesquite at Mecca.

96. *Polioptila caerulea obscura*. Western Gnatcatcher. Noted only at Mecca in equal abundance with the next. As a rule found in trees while *plumbea* was more often seen in the low brush.

97. *Polioptila plumbea*. Plumbeous Gnatcatcher. Common in all three localities. Often seen in pairs.

98. *Regulus calendula calendula*. Ruby-crowned Kinglet. Several noted at each place. Most seen at Mecca.

99. *Planesticus migratorius propinquus*. Western Robin. Abundant about Mecca in the mistletoe-bearing mesquite. Two from Alamoria.

100. *Sialia mexicanus occidentalis*. Western Bluebird. A flock of about twenty hung about Mecca for two days.

101. *Sialia currucoides*. Mountain Bluebird. An adult male taken at Brawley December 12, the only one seen.

BIRDS FOUND AT MECCA, MARCH 18 TO 31, 1911

1. *Colymbus nigricollis californicus*. Eared Grebe. Several individuals and sometimes small flocks of from three to seven frequently seen at Salton Sea.

2. *Larus californicus*. California Gull. Common at the sea.

3. *Larus delawarensis*. Ring-billed Gull. Common. Adult birds already had the pure white head and neck of the breeding plumage.

4. *Phalacrocorax auritus albociliatus*. Abundant. Usually in large flocks about a mile off shore. No occupied nests were found and the birds had not yet taken on the breeding plumes.

5. *Pelecanus erythrorhynchos*. White Pelican. But one or two seen. Probably most had gone to their island, about thirty miles out, to breed.

6. *Dafila acuta*. Pintail. Fairly common in twos and threes in the weeds along shore.

7. *Marila affinis*. Lesser Scaup. A pair on a reservoir March 19.

8. *Charitonetta albeola*. Bufflehead. Three small flocks of two pairs each seen at the sea March 24.

9. *Nycticorax nycticorax naevius*. Black-crowned Night Heron. Several at Salton March 24. One or two roosted in the cottonwoods about a reservoir at Mecca.

10. *Ardea herodias treganzii*. Treganza Blue Heron. Not as common as during the winter. A nearly white albino seen March 24 in company with a normal bird. The plumage showed a decided bluish tinge even at a distance.

11. *Grus mexicanus*. Sandhill Crane. Two small flocks stayed about the fields near Mecca.

12. *Recurvirostra americana*. Avocet. Two flocks of about thirty each seen near the boat landing, were very tame allowing a close approach. Some were in complete breeding plumage and others in every shade to nearly clear gray on the head and neck.

13. *Gallinago delicata*. Wilson Snipe. Seen nearly every day, usually in pairs. The ovary of a female taken March 22 contained an egg the size of a small pea.

14. *Pisobia minutilla*. Least Sandpiper. Common in small flocks at Salton.
15. *Ereunetes mauri*. Western Sandpiper. Not so common as the last and usually only three or four together. Both species still in winter plumage.
16. *Oxyechus vociferus*. Killdeer. Abundant near water. Several seen on the dry desert above Mecca.
17. *Aegialitis nivosa*. Snowy Plover. Two pairs met with March 26 on the alkali flats near the sea. A male and female taken showed no signs of breeding.
18. *Lophortyx gambeli*. Gambel Quail. Common. Nearly all were paired off by this time and as single males were often flushed they may have been breeding.
19. *Zenaidura macroura carolinensis*. Mourning Dove. About a dozen individuals seen.
20. *Cathartes aura septentrionalis*. Turkey Vulture. Seen nearly every day singly or in pairs. Dead carp on the seashore seemed to be a favorite diet.
21. *Accipiter velox*. Sharp-shinned Hawk. Two seen March 21.
22. *Buteo borealis calurus*. Western Red-tail. An adult stayed about camp during our entire stay.
23. *Aluco pratincola*. Barn Owl. But a single bird noted. On March 30 one flushed from a mistletoe covered mesquite.
24. *Speotyto cunicularia hypogaea*. Burrowing Owl. Not common. A few noted on the desert above Mecca.
25. *Geococcyx californianus*. Roadrunner. One observed at Salton March 24 was only one seen, though their tracks could often be seen in sandy places.
26. *Dryobates scalaris bairdi*. Texas Woodpecker. Two pairs taken in the burned brush near Mecca. This charred mesquite was alive with borers, which judging from the crops and stomachs of the specimens taken, formed the exclusive diet of these wood-peckers.
27. *Colaptes cafer collaris*. Red-shafted Flicker. Fairly common in the mesquite brush near Mecca.
28. *Chordeiles acutipennis texensis*. Texas Nighthawk. Appeared March 20, a single bird. By the evening of the 24th they were common. Dozens could be seen over a damp meadow near our camp, and over nearby reservoirs.
29. *Aeronautes melanoleucus*. White-throated Swift. Several about a damp meadow March 21.
30. *Tyrannus verticalis*. Arkansas Kingbird. March 21 a flock of eight arrived and two pairs soon had nesting sites picked out near the station.
31. *Myiarchus cinerascens*. Ash-throated Flycatcher. One specimen taken March 30 in the mesquites was the only one noted.
32. *Sayornis nigricans*. Black Phoebe. A pair could usually be seen on any reservoir or damp ground.
33. *Empidonax griseus*. Gray Flycatcher. Mr. Howard Wright who was with me took one March 20. Another seen on the 23rd.
34. *Pyrocephalus rubineus mexicanus*. Vermilion Flycatcher. One collected by Mr. Wright on March 21. Within a week three pairs were in the immediate vicinity of our camp.
35. *Corvus corax sinuatus*. Raven. Several seen along the railroad on the telephone poles.
36. *Molothrus ater obscurus*. Dwarf Cowbird. Common in pairs. Usually associated with the Brewer Blackbird.
37. *Agelaius phoeniceus sonoriensis*. Sonoran Redwing. About a dozen pairs stayed about the cottonwoods near the station. In this grove were also a pair of

Vermilion Flycatchers, a pair of Arkansas Kingbirds, a pair of Texas Woodpeckers, and dozens of Goldfinches, Brewer Blackbirds, and Gambel Sparrows.

38. *Sturnella neglecta*. Western Meadowlark. Fairly common in the grain fields and wherever there was sufficient grass for cover.

39. *Icterus cucullatus nelsoni*. Arizona Hooded Oriole. One taken March 28 and another seen the same day were the only ones noted. Possibly common later in the year.

40. *Icterus bullocki*. Bullock Oriole. Several seen every day, the majority being adult males. The numerous old nests hanging from the cottonwoods would show them to be more abundant in the nesting season.

41. *Euphagus cyanocephalus*. Brewer Blackbird. Large flocks stayed about the horse corrals and along the railroads and freight yard.

42. *Astragalinus psaltria hesperophilus*. Green-backed Goldfinch. Abundant. Several pairs had nests well under way by March 30, thread and cotton from the skinning table going largely in their makeup.

43. *Astragalinus lawrencei*. Lawrence Goldfinch. Nearly as common as the last, but they had not paired off and specimens collected showed no signs of breeding.

44. *Spinus pinus*. Pine Siskin. A flock of four noted on the evening of March 28, feeding on the cottonwood seeds. The next day they were common, going in flocks of from four to twenty. Their crops were stuffed with cottonwood seeds.

45. *Passerculus sandwichensis alaudinus*. Western Savannah Sparrow. The Large-billed Sparrows had disappeared from the tule marsh completely and their place was taken by this species, which was very abundant but wild.

46. *Zonotrichia leucophrys gambeli*. Gambel Sparrow. From March 18 to 25 this was by far the commonest bird. After this they thinned rapidly and the day I left (March 31) only three were seen in a fairly wide range of ground covered.

47. *Spizella breweri*. Brewer Sparrow. Fairly common on the desert flat above Mecca, sometimes in company with the Gambel Sparrows.

48. *Amphispiza nevadensis canescens*. California Sage Sparrow. Sage Sparrows were rather rare. Not more than half a dozen were seen and these on the desert country above Mecca.

49. *Melospiza melodia fallax*. Desert Song Sparrow. A male specimen taken March 20 was in breeding condition, but no nests were found. Sometimes they could be heard on the desert a mile or more from water, in the dense mesquite thickets which dotted the desert here, but generally they were near water.

50. *Melospiza lincolni*. Lincoln Sparrow. Common on our arrival, but rapidly grew scarce. The last one seen was taken March 27.

51. *Pipilo aberti*. Abert Towhee. Abundant. A nest with two incubated eggs found March 20 in a clump of mistletoe, a set of three fresh in a like situation March 21, and another set of two in an arrow-weed clump March 27. Many old nests were found in locations like the first two.

52. *Iridoprocne bicolor*. Tree Swallow. Common in flocks during our stay. They were most in evidence in the late afternoon about reservoirs and fields.

53. *Phainopepla nitens*. Phainopepla. Abundant. Breeding. There were eight occupied nests in the mesquite grove of about four acres in which we were camped, two building, two with eggs, and four with young in various stages (March 20). Two days before I left such young as were on the wing, and their parents were gathering in flocks of from half a dozen to fifteen each. It is not unlikely that many raise a brood before starting northward to their summer home.

54. *Lanius ludovicianus excubitorides*. White-rumped Shrike. In considerably less numbers than in winter. A nest was found March 21 with three young just able to fly and another the 27th with five pipped eggs, only five feet from the ground in an "inkweed" bush.

55. *Vireo vicinior*. Gray Vireo. A specimen collected March 26 in the mesquites, and another heard the same day.

56. *Vermivora luciae*. Lucy Warbler. An adult female taken in a mesquite over the tent on March 29.

57. *Vermivora celata lutescens*. Lutescent Warbler. Only one seen, an adult female collected on March 28.

58. *Dendroica auduboni*. Audubon Warbler. Abundant everywhere until March 25. After this they decreased rapidly in numbers and the last one was seen March 29.

59. *Dendroica nigrescens*. Black-throated Gray Warbler. On March 21 eight passed through and one was taken. No others were noted.

60. *Geothlypis trichas occidentalis*. Western Yellowthroat. In breeding condition but no nests found. Common.

61. *Wilsonia pusilla chryseola*. Golden Pileolated Warbler. Appeared March 22 (two birds seen), and were common from then until we left.

62. *Anthus rubescens*. Pipit. A single bird seen on the alkali flat near Salton Sea March 19, and one on the 22nd.

63. *Oreoscoptes montanus*. Sage Thrasher. Mr. Wright took a pair the evening of March 22 in the brush near a canal. Single birds frequently seen from then on.

64. *Mimus polyglottos leucopterus*. Western Mockingbird. A pair were building in a dead mesquite near camp and had a half completed nest on March 31. The bulk of those which were so common here in January were probably winter visitants only.

65. *Toxostoma crissale*. Crissal Thrasher. Fairly common but shy. Several nearly grown young with tail feathers about three inches long were taken, and were from two different nests. Mr. Wright found a nest in a clump of mistletoe March 21 which contained one egg evidently deserted. The adults were already in worn, ragged plumage—what they must look like by July!

66. *Heleodytes brunneicapillus couesi*. Cactus Wren. Two pairs with nests, the contents of which could not be ascertained, in the mesquites near camp.

67. *Thryomanes bewicki charienturus*. San Diego Wren. Not common. One of the two noted was collected and is this form.

68. *Auriparus flaviceps*. Verdin. Common. Many nests were found ready for eggs, usually surrounded by three or four dummies. Two sets were taken March 21 and 26, containing slightly incubated sets of four and three eggs respectively. All nests were in mesquite trees and the great majority under six feet from the ground.

69. *Regulus calendula calendula*. Ruby-crowned Kinglet. Several seen up to March 25.

70. *Polioptila caerulea obscura*. Western Gnatcatcher. Not common. One collected March 20 and another heard on the 21st.

71. *Polioptila plumbea*. Plumbeous Gnatcatcher. Abundant. Birds taken were nearly ready to breed. A nest found on March 30 was just begun.

72. *Planesticus migratorius propinquus*. Western Robin. Common. Feeding on the mistletoe berries, many of which were still hanging. Most of the robins left by the 25th and 26th of March, but one or two could be seen every day till the 29th.

FROM FIELD AND STUDY

Some Diving Notes on Cormorants.—On June 12, 1910, while collecting along a stretch of rocky coast line in a twenty foot skiff, with Joe Francisco, my boatman, I took some interesting notes on the diving of the Brandt Cormorant (*Phalacrocorax penicillatus*), and Baird Cormorant (*Phalacrocorax pelagicus resplendens*).

We were one and one-half miles southwest from Trinidad, Humboldt County, California, and about one-half mile off shore. Mr. Francisco had set a net the night before, near a blind rock and in twenty fathoms of water. We were taking in the net when a Brandt Cormorant came to the surface in its meshes, then a second one and a third. Although the Baird Cormorants were common everywhere on the ocean, there were none in the net. On closely questioning the fisherman, he informed me Brandt Cormorants were caught almost daily in from five to thirty fathoms of water, while using the deep water nets, but were never taken in over forty fathoms of water; while the Baird Cormorant, (I had taught him the difference between the two species), were often taken in as much as eighty fathoms of water.

I saw several Baird Cormorants rise to the surface of the water with pieces of kelp in their bills, in places where Joe informed me the water was over eighty fathoms deep. Brandt Cormorants were not seen far off shore, though they were common amongst the rocks near shore. Is it a superiority in diving, or a desire to obtain a certain kind of food that prompts the Baird Cormorants to go down deeper than Brandt Cormorants, while on their feeding grounds?—C. I. CLAY.

The Black Duck in California.—The Museum of Vertebrate Zoology of the University of California is the recipient of a specimen of the Black Duck (*Anas rubripes*). It is evidently a female, though the sex was not recorded from dissection, and is excellently mounted. It was transmitted to the Museum by Mr. Vernon Shepherd, a taxidermist of San Francisco, who received the bird from a hunter by the name of Spooner, who shot it at Willows, Glenn County, California, February 1, 1911. The specimen is No. 17198 of the Museum's department of birds.—J. Grinnell.

Golden Eagle and Dog.—The following eagle story was told to me by Mr. A. J. Nevraumont, of the California Seed Co., San Francisco, California, and both Mr. Nevraumont and his brother-in-law, who was with him at the time, are willing to take their oaths that it is true in every detail. And I might say parenthetically that they trust me implicitly to get the details straight. And I hope I do.

On Christmas day, 1909, Mr. Nevraumont and his brother-in-law took a walk in the redwood grove near San Rafael, Marin County, California, and had with them a small white dog. As they were strolling along, enjoying the balmy softness of a California Christmas among the beautiful evergreen redwood trees they were startled by the sound of rushing wings, and saw that an eagle was swooping down from some point of vantage upon the white dog. As the bird descended it touched a dead branch which broke off and came down on top of it just as it struck at the little dog. The branch was so heavy and the blow from it was so great that the eagle was partially stunned, and Mr. Nevraumont managed to jump on the bird and save his dog from harm. He killed the eagle with a club, and showed it to several people. If he had known at the time that my brother and I were interested in birds he would have presented it to us, he says, but being ignorant of our especial hobby he naturally did not do so. From his description it must have been a Golden Eagle. I have seen this species on rare occasions in this county, but never in the vicinity of San Rafael.—JOSEPH MAILLIARD.

A Method of Tree Climbing.—Collecting a set of four Pileated Woodpecker's eggs from a stump five feet in diameter at the base; nest forty-five feet from the ground.

First a rod of one-fourth inch iron, thirteen feet long is bent as shown at *a b c*, Fig. 1, with loops at *a*, *b*, and *c*, and laid on the ground around the tree.

Second, a five-eighths inch rope twenty-five feet long, shown by *d e*, Fig. 1, wound spirally around the iron rod as shown, and with a loop at *l*, about six feet from end *d*, also laid on the ground.

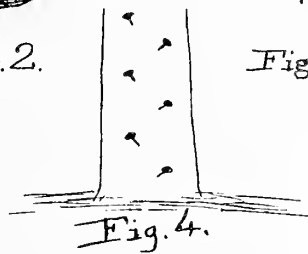
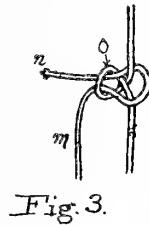
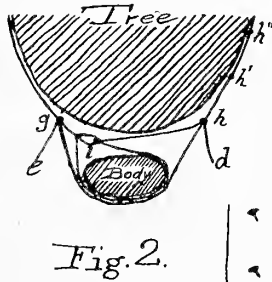
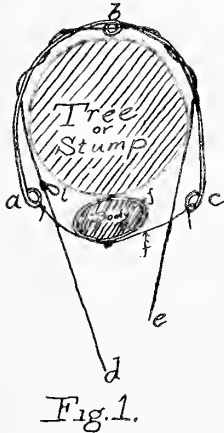
Third, six feet of clothes line tied around the waist (ff Fig. 1.) and to the loops *a* and *c* of the iron rod.

The rope end *d* is carried around the body and fastened to the loop *l* with any suitable knot and again at *h* as shown in Fig. 2. The end *e* is also passed around the body and fastened at *g*, the knots at *g* and *h* being made as shown in Fig. 3. As the tree becomes smaller, while being ascended, the loop *o*, (Fig. 3) has to be shifted from *h* to *h'* and *h''* etc., (Fig. 2) the slack rope being taken up at *g* (Fig. 2) by pushing the part *m* through the loop *o* and pulling the end *n*

out; so that when I slipped and fell back, which occasionally happened, as it was raining hard and blowing a gale, it jerked up tight on *o* but could not get *n* out. The two ends of the iron rod were bent around behind the bark as the rod became too long.

About two hours of experimenting were necessary to figure out this combination, the reverse of everything being very simple while coming down, which took about five minutes.

Twenty-five spikes eight inches long, and a small hand axe were also taken along (in a satchel with an egg box) and driven into the stump in a zig-zag as shown in Fig. 4, each spike being about two feet higher than the last; twenty-four spikes were needed and I could not have got the eggs with twenty-three only, so that it was "cutting it rather fine", but the estimated height was forty feet; it is advisable to take more than five extra spikes, especially as they cost only a cent apiece. The iron rod of course is used to lift the rope up ahead while ascending, branches being cut or knocked off with the hand axe, which was looped to the wrist most of the time to prevent dropping it. On the south side (where the nest was) the stump was so rotten that the spikes when driven four inches into the wood, pushed right out when my weight was put on them, so climbers were useless; on the north side they just would hold my weight and that was all, but two pulled out on the way down. The whole combination is absolutely safe and I could repeat it now in twenty minutes. It is hardly more difficult than going up and down stairs. The stump, a cottonwood, was about fifty-five feet high and surrounded by ash trees of the same height, in a large swamp of about 100 acres one-fourth mile from the Illinois river and four miles south of Kerby. The swamp is heavily timbered with large cottonwoods and smaller deciduous trees of other kinds, and these waving violently in the wind finally produced a sensation that was probably like sea-sickness, but deep-breathing stopped it very quickly. Also, when about ten feet below the nest the old birds appeared for the first time that day (the nest was



located the day before by seeing one bird fly to it when the other came out and flew away) and set up all kinds of "cat-calls" that very quickly dispelled any remaining dizziness.

The nest was about fifteen inches deep, the floor of it being boat-shaped, about ten inches long and five inches wide, and chipped out of the soft sap wood, so that its length was parallel with the side of the tree. The day before I staid near it for about an hour trying to devise some way to reach it and during this time the birds changed places once and occasionally hammered inside the nest, but did not throw anything out. The ground below was covered with fresh chips but the entrance was old and dark colored. One bird, probably the male, made most of the noise, while the other seemed very much subdued and depressed, and the same was noticed around a nest that I found in 1901. In each case the noisy bird was first heard, apparently about half a mile away and approaching very swiftly with its loud, clear calls; then lighting on a tree near by and keeping up a soft, conversational "clu-clu-clu, clu-clu-clu", for several minutes till the other bird came out and flew silently away, when number one flew to the nest and looked in (while clinging to the outside just below the entrance) and then back out again and all around for six or eight times before going in. The soft notes are like "chuck" with the hard "ck" taken off and I have heard the same complete combination several times, apparently in about one place in another large swamp, but cannot find any nest, yet feel sure that a nest must be there as all of the conditions are just right for it.

The four eggs were about one-fourth incubated. It was rather difficult to reach half way around the tree and cut out the hollow, and it is very probable that if my father had not in the past given me endless instruction in all kinds of knots, the nest would never have been reached.

Some oologists talk about hiring climbers, but I not only cannot get anyone to climb a tree, but find it necessary to go alone, as anyone who goes along in case of accident, throws so much "cold water" that it completely extinguishes my desire to climb. It might be well, if any large limb were to be encountered, to take a sharp hand saw.—CHARLES W. BOWLES.

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EDITORIAL NOTES AND NEWS

The Board of Supervisors of Los Angeles County has now under construction in Exposition Park, formerly Agricultural Park, in the city of Los Angeles, a building to be used for museum purposes. The name of the new institution is the Museum of History, Science and Art; the building is to cost \$226,000, exclusive of heating, lighting, decorating, or furnishing. Its purpose is the conservation and exhibition of scientific, historical and art objects. It is governed by a board of nine persons, chosen as follows: Two members from the Southern California Academy of Sciences, two from the Historical Society of Los Angeles, two from the Fine Arts League, one from the Southern Division of the Cooper Ornithological Club, the Chairman of the Board of Supervisors, and one member elected by those chosen as above stated. The present members of the Board of Governors are as follows:

W. A. Spalding and Dr. A. Davidson, representing the Academy of Sciences, Dr. Geo. F. Boyard and J. M. Guinn, representing the Historical Society, Mrs. W. H. Housh and A. F. Rosenheim, representing the Fine Arts League, Howard Robertson, representing the Cooper Club, R. W. Pridham, representing the Board of Supervisors, and W. M. Bowen, member at large.

Mr. W. M. Bowen has been elected President of the Board, and Mr. Howard Robertson Secretary. The duty of the Board is to take full

charge of the building, provide specimens and exhibits, and do such other things as are ordinarily required in the conduct of an institution of this character.

At present, progress is being made in the mounting of paleontological specimens from La Brea Ranch, and such other specimens as have been donated up to the present time.

The Museum building is divided into three wings; the north wing to be devoted to history, the south wing to natural sciences, and the west wing to art. The scientific department will be devoted to zoological specimens for exhibition purposes, as well as series for study, and it is expected that very large collections will be made. The historical department will deal largely with the early history of the southwest, and will contain many of the valuable records, books and other documents of the earlier history of southern California. The art department will be devoted to the exhibition of paintings, statuary, etc. There is now being prepared a bronze group, representing history, science and art, which, when completed, will be placed in the rotunda of the building.

Great success has been met with in obtaining exhibits, for the reason that as Los Angeles County has long been in need of a building of this kind, many people are glad of the opportunity to place collections therein. The building, of course, is absolutely fire proof, and being a county institution, sufficient funds for its maintenance are assured. It is expected that it will be completed and ready for occupancy some time during the latter part of September, or early in October. It will be some time after that before it is formally opened, as a large amount of work will have to be done in arranging exhibits and specimens.

The "Directory of the Cooper Ornithological Club" appearing in this issue contains the names of 369 active and five honorary members, showing a substantial increase in the size of the Club during the past year.

PUBLICATIONS REVIEWED

J. H. BOWLES' "NOTES EXTENDING THE [KNOWN] RANGE[S] OF CERTAIN BIRDS ON THE PACIFIC SLOPE" (*Auk* XXVIII, April 1911, pp. 169-178).—This article was avowedly prompted by the recognized shortcomings of the Third Edition of the A. O. U. Check-List in the matter of statements of distribution. The notes deal with about forty species as occurring in the State of Washington or in California in the vicinity of Santa Barbara.

In the first place the present reviewer would make the point in defense of the Check-List that the limitations imposed by practical size of the work necessitated the use of the most general terms in the outlining of ranges. On this score the Check-List statement that *Certhia familiaris zelotes* ranges "south to San Jacinto Mountains, spreading into adjacent valleys in winter" would seem to cover the possibility of its occurrence at Santa Barbara

in January as established by Mr. Bowles, so that the criticism of this and similar cases does not appear fairly deserved. Mr. Bowles' record in itself is, however, of decided value in adding a definite station to our detailed data on the distribution of the bird.

In the second place the obvious fact, apparent to anyone studying distribution of North American birds, that very many good records were overlooked by the compilers of the Check-List, resulting in inadequate statements of range, would fully warrant several of Mr. Bowles' "extensions". Here, however, Mr. Bowles might have clearly indicated whether his contribution was to serve as a criticism of the Check-List, or as an actual addition to known facts. (By "known" is meant *published*, and hence available to the public.) Thus, *Passerculus rostratus rostratus* had been previously recorded from Santa Barbara (Heermann, Pac. R. R. Rep. X, 1859, p. 46) and even as far north as Santa Cruz (Mailliard, CONDOR VI, Jan. 1904, p. 16).

In the third place the difficulties in the way of proper sub-specific designation have evidently lead to a difference in employment of names, and so have given rise to "extensions" of range in some cases probably warranted, in others not. The subspecific status of any bird in a given region cannot be safely considered as established upon the snap judgment of even the foremost of experts, nor upon conclusions reached by any person with scanty material or limited experience in systematic ornithology. Thus in *Psaltiriparus* the determination of the correct name of the form at Santa Barbara would depend on a careful study of normal variation in series of specimens not only from Santa Barbara but from other geographic areas and taken at all seasons; also upon nomenclatural considerations based upon a study of literature with a view to ascertaining the applicability of the various proposed names. The same would be true for *Chamaea* and *Pipilo*.

Mr. Bowles' remarks in regard to the status of the Bush-Tit and Wren-Tit at Santa Barbara, give one to understand that the author thinks it probable that in each case *two* subspecies may exist in the vicinity, one being migratory. In our experience such a condition in these species is scarcely possible. Neither of the birds in question is migratory beyond a very limited local movement. The difference noted in specimens will probably be found to fall within the range of variation due to seasonal, age, or individual factors.

As of faunal interest and perhaps, worthy of different interpretation than that suggested by Mr. Bowles, the Stephens Fox Sparrow is recorded from an elevation of 3000 feet "in the hills of Santa Barbara County", under date of August 30. This is probably a transient

station, and *not* a breeding station. It is *not* the "farthest north record" for the species, as it is well known to breed in the high Transition zone on the north side of Mt. Pinos, lat. 34° 50' (see *Auk* XXII, Oct. 1905, p. 388). This locality is what is called "Tejon" Monntains in the A. O. U. Check-List.

It is extremely unfortunate that Mr. Bowles put *Pinicola enucleator californica* on record from southern California upon such inadequate evidence as that submitted. The occurrence of the species at any season at so low an elevation as 3000 feet anywhere in California is in itself exciting of comment. But when we consider that the species has never been recorded in California south of the head of the San Joaquin river, in Madera or Fresno County (Fisher, N. Am. Fauna No. 7, May 1893, p. 79), and never, winter or summer, below the Canadian life zone, a record like the present one demands the severest test. The California Pine Grosbeak is a species the occurrence of which anywhere under such zonal conditions as the "hills of Santa Barbara County", to be thoroughly established would have to be backed up by the taking of specimens at the very least. What makes this record the limit of badness is that it is couched in full scientific form and will have to be synonymized, but under what? If under *Pinicola*, an extra citation will be needed—with a question mark.

Another criticism of Mr. Bowles' paper is that some of the facts offered have been published fully by himself or others elsewhere; for example, in the case of *Steganopus tricolor* at Santa Barbara. Is it justifiable to repeat records and thus multiply citations except where a general review of the status of a species is attempted?

Now, whatever points I have indicated above, whether they be accepted by my readers as well taken or not, are made with their general bearing in view, and *not* with the intent of personally "scorching" Mr. Bowles! This should be clearly understood by the casual reader. In fact, Mr. Bowles told me some of the things he proposed to put on record long before this *Auk* article was sent in, and, knowing that I might take exceptions, invited me to publish my criticisms freely. Not one of us is beyond the possibility of making egregious errors, and never will be. But let us all exercise caution and the extreme of care in putting our supposed facts on record. I have been guilty myself of making a number of bad records (see CONDOR IV, Jan. 1902, p. 17). It gives a distinctly uncomfortable feeling that I never quite escape from. Perhaps this individual sensitiveness is a fortunate circumstance for our science. If so, would that it were a trait common to all bird students!—J. GRINNELL.

USEFUL BIRDS OF SOUTH AUSTRALIA.—The insectivorous birds are treated anew in an illustrated serial article beginning in the April 1911 issue (Vol. XIV No. 9, pp. 848-855) of the Journal of the Department of Agriculture of South Australia. The text is by Mr. A. G. Edquist and the colored plates are prepared by Mr. C. Wall. The author says "The importance of protecting the insectivorous species of our native birds becomes more apparent each year, with the increase of insect pests in our gardens and orchards. In order to assist in the identification of those harmless and useful native birds which are protected by law, we publish in this issue colored plates and descriptions of six species, and the series will be continued in subsequent numbers of the *Journal*."

A list is given of the species included in the Bird Protection Act of 1900, as well as the species upon which open seasons are allowed, and of those that may be killed or taken at any time. The destruction of wading birds is deplored as "it is the decimation of such birds which leads to the ever-increasing multitudes of crustaceans (crabs and yabbies) that destroy fish spawn and young fish hatching out in the Coorong and lakes at the Murray Mouth."

The first installment of "Our Feathered Friends", as the article is entitled, treats the following species, Frogmouth (*Podargus humeralis*), Mopoke (*Athene boobook*), Diamond Bird (*Pardalotus striatus*), Yellow-rumped Tomtit (*Acanthiza chrysorrhoa*), Red Warbler (*Acrocephalus australis*), and Magpie Lark (*Grallina australis*). Brief notes on the general nature of the food of each species is given together with comments on scientific and common names, appearance, habitat, nest, eggs and notes. Each species and its egg are illustrated in color.—W. L. M.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

APRIL.—The April meeting of the Northern Division of the Club was held on the evening of April 22 in the Museum of Vertebrate Zoology, Berkeley. The following members were present: H. C. Bryant, W. P. Taylor, O. Heinemann, E. W. Gifford, D. Brown, and H. S. Swarth. In the absence of the president and vice-president, Mr. Bryant took the chair. The minutes of the March meeting were read and approved. The following applications for membership were presented: Herbert Parker, South Lancaster, Mass.; S. S. Visser, Forestburg, S. D.; L. H. Paul, Newark, N. Y.; M. S. Crosby, Rhinebeck, N. Y.; L. M. Terrill, Quebec, Canada; W. J. Brown, Quebec, Canada; A. H. Helme, Suffolk Co., N. Y.; C. M.

Case, Hartford, Conn.; all presented by A. B. Howell; and L. Tremper, Philadelphia, Pa.; and Gurnie Wells, Santa Rosa, Cal., presented by W. Lee Chambers.

The following were elected to membership in the Club: Elizabeth B. Davenport, J. F. Frazier, Roy Norris, S. S. Dickey, W. B. Mershon, F. O. Pilsbury, J. H. Trumbull, A. D. DuBois, Rowena A. Clarke, F. H. Kennard, Juliette A. Owen, P. B. Philipp, Eunice E. Caduc, J. P. Norris, Jr., W. J. Hoxie, J. M. Edson, Carl Mueller, Louise Kellogg, F. Kermode, F. H. B. Jordan, J. F. Stevens, H. J. Rust, W. T. Shaw.

The amendments to the Constitution proposed by the Southern Division were then taken up, and after discussion the committee on the Constitution was instructed to communicate to the Southern Division the views the northern members held on the subject, and was given power to act in the matter. Mr. M. S. Ray resigned from the committee, and was replaced by Mr. O. Heinemann.—H. S. SWARTH, *Secretary*.

SOUTHERN DIVISION

APRIL.—The April meeting of the Southern Division of the Cooper Club was held on Thursday evening, April 27, 1911, in the office of H. J. Lelande, 246 Wilcox Building, Los Angeles. The meeting was called to order by President Morcom, with the following members present: Messrs Willett, Miller, Rich, Lamb, Alphonse Jay and Lelande.

On motion by Mr. Miller, seconded by Mr. Lamb, and duly carried, Mr. Lelande was appointed Secretary pro tem. The minutes of the March meeting were read and approved. The following applications for membership were presented: L. McI. Terrill, Westmont, Canada; William J. Brown, Westmont, Canada; Arthur H. Helme, Miller Place, N. Y.; Clifford M. Case, Hartford, Conn.; Robert P. Sharples, West Chester, Penn.; Dr. W. W. Arnold, Colorado Springs, Colo.; all presented by Mr. A. B. Howell; and Lauren Tremper, Philadelphia, Pa., presented by Mr. W. Lee Chambers.

On motion by Mr. Willett, seconded by Mr. Miller, and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Messrs. Visser, Paul, Crosby, Parker, Edson, Hoxie, Norris, Caduc, Philipp, Kennard, Du Bois, Trumbull, Pilsbury, Mershon, Dickey, Norris, Frazier, Weed and Gardner, and the Misses Owen, Clarke and Davenport, whose names were presented at the March meeting.

The minutes of the March meeting of the Northern Division were read and ordered filed. Also a communication from Mr. Grin-

nell to Mr. Tracy mentioning the active interest that Col. Roosevelt took in ornithological matters during his recent visit to the U. C. Museum of Vertebrate Zoology; a communication from Mr. Henry Oldys, with circulars, in regard to his lectures; and a letter from Mr. F. S. Daggett in regard to the Chambliss collection.

President Morcom announced that the Misses Tarbell and Parker tendered, through him, to the members of the Cooper Club, an invitation to hold the spring outing meeting at their cabin in the Arroyo Seco Canyon. Mr. Lelande moved, and it was seconded by Mr. Willett, and duly carried, that the invitation be accepted, and the Secretary be instructed to send a letter of acceptance with thanks of the Club. Mr. Willett read portions of the data he has collected on the water birds of Santa Barbara, Ventura, Los Angeles, Orange and San Diego counties, which proved of much interest. Photographs taken by Prof. Loye Miller in the neighborhood of his residence were exhibited. Dr. Rich also exhibited a book of photographs which had been taken in the East and presented to him. Adjourned. —H. J. LELANDE, *Secretary, pro tem.*

MAY.—The Spring Outing Meeting of the Southern Division of the Cooper Club was held on Sunday afternoon, May 21, on the premises of the Misses Tarbell and Parker, Cabin 21, Arroyo Seco Canyon.

The meeting was called to order by President Morcom, with the following members present: Misses Tarbell and Palmer, Messrs. Clifton, Howell, Chambers, Miller, Judson, Alphonse Jay, Granville and Lelande. Miss Parker and Mr. Ralph Hord, and the mother, wife and children of W. B. Judson were present as visitors.

On motion by Mr. Miller, seconded by Mr. Judson, and duly carried, Mr. Lelande was appointed Secretary *pro tem.* The minutes of the April meeting of both Divisions were read and approved, and ordered filed. On motion by Mr. Judson, seconded by Mr. Miller and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Messrs. Terrill, Brown, Helme, Case Sharples, Arnold and Tremper. The following applications for membership were presented: Proposed by A. B. Howell; Alex. Walker, Armour, South Dakota; Dr. B. A. Hamilton, Highland Park, Ill.; Mr. Frank Smith, Univ. of Illinois, Urbana, Ill.; Barton Warren Evermann, Bureau of Fisheries, Washington, D. C.; M. A. Carriker, Jr., Amer. Mus. Nat. Hist., New York City; W. T. Shaw, 600 Linden Ave., Pullman, Wash.; Henry J. Rust, Box 683, Coeur d'Alene, Idaho; J. F. Stevens, M. D., Box 546, Lincoln,

Nebraska; A. H. B. Jordan, Lowell, Wash.; Rev. Robt. Barbour, Y. M. C. A., Montclair, N. J.; H. Nehrling, Gotha, Orange Co., Florida; F. Kermode, Curator, Provincial Mus., Victoria, B. C.

Proposed by J. Grinnell, Louise Kellogg, 1253 Grove Street, Oakland, Calif. Proposed by W. L. Chambers: Gurnie Wells, Santa Rosa, Cal.; Carl Mueller, Marysville, Cal.; Owen Durfee, Box 125, Fall River, Mass.; Reginald C. Barker, Blackwater, Pinal Co., Arizona. Proposed by J. G. Tyler: Nita A. Blayne, 920 O St., Fresno, Cal.; F. M. Lane, 346 Blackstone Ave., Fresno, Cal. The resignation of Mr. G. C. Embury was read, and on motion by Mr. Clifton, seconded by Mr. Judson, and duly carried the said resignation was accepted with regret. On motion by Mr. Clifton, seconded by Mr. Miller, and duly carried, a rising vote of thanks was extended to the Misses Tarbell and Parker for their excellent luncheon and hospitality. Adjourned. H. J. LELANDE, *Secretary, pro tem.*

Directory of Members of the Cooper Ornithological Club

Revised to June 1, 1911

(Residence in California unless otherwise stated. Year following address indicates date of election.)

HONORARY MEMBERS

Allen, Dr. J. A., American Museum of Natural History, New York, N. Y. 1910.
Beal, Prof. F. E. L., Dept. of Agriculture, Washington, D. C. 1910.
Belding, Lyman, Stockton. 1896.
Merriam, Dr. C. Hart, 1919 16th St., Washington, D. C. 1909.
Ridgway, Robert, 3353 18th St., N. W., Washington, D. C. 1905.

ACTIVE MEMBERS

Adams, Ernest, Box 21 Clipper Gap, Placer Co. 1896.
Allen, Arthur A., 115 Stewart Ave., Ithaca, N. Y. 1911.
Alexander, Miss Annie M., 1006 16th St., Oakland. 1908.
Anderson, Malcolm P., Menlo Park, 1901.
Appleton, J. S., Simi, Ventura Co. 1901.
Arnold, B. W., 465 State St., Albany, N. Y. 1910.
Arnold, E., Frt. Claim Agt., Grand Trunk Ry., Montreal, Quebec. 1910.
Arnold, Dr. Ralph, 726 H. W. Hellman Bldg., Los Angeles. 1893.
Arnold, Dr. W. W., 504 N. Nevada Ave., Colorado Springs, Colo. 1911.

- Atkinson, W. L., 28 E. Santa Clara St., San Jose. 1901.
- Baile, Wm. Frederic, 2616 College Ave., Berkeley. 1903.
- Bailey, Florence Merriam, 1834 Kalorama Rd., Washington, D. C. 1910.
- Bailey, H. H., Box 154, Newport News, Va. 1903.
- Bailey, Vernon, 1834 Kalorama Rd., Washington, D. C. 1904.
- Bales, Dr. B. R., 151 West Main St., Circleville, Ohio. 1906.
- Bangs, Outram, Mus. of Comparative Zoology, Cambridge, Mass. 1910.
- Barbour, Rev. Robt., Y. M. C. A., Montclair, N. J. 1911.
- Barker, Reginald C., Blackwater, Pinal Co., Ariz. 1911.
- Barnes, R. Magoon, Lacon, Ill. 1908.
- Barrows, Prof. Walter B., Box 183, East Lansing, Mich. 1909.
- Batchelder, Chas. F., 7 Kirkland St., Cambridge, Mass. 1910.
- Baynard, Oscar E., Gainesville, Fla. 1911.
- Beck, Rollo H., Berryessa. 1894.
- Beekman, Orland, Sespe. 1911.
- Beers, Henry W., 91 Denver Ave., Bridgeport, Conn. 1910.
- Bennett, R. H., Room 503, 149 California St., San Francisco. 1909.
- Bent, A. C., Taunton, Mass. 1909.
- Bigelow, Homer L., Old Orchard Road, Chestnut Hill, Mass. 1910.
- Birdseye, Clarence, Biol. Survey, Washington, D. C. 1909.
- Bishop, Dr. Louis B., 356 Orange St., New Haven, Conn. 1904.
- Blain, Merrill W., 1321 Glendale Ave., Tropic. 1909.
- Blake, Maurice C., Thatcher School, Nordhoff. 1911.
- Blayney, Nita A., 920 O St., Fresno. 1911.
- Bliss, J. G., 3281 Briggs Ave., Alameda. 1908.
- Bohlman, Herman T., 46 N. 9th St., Portland, Oregon. 1903.
- Bolander, L. P., Jr., 545 N. Sutter St., Stockton. 1907.
- Bowditch, B. S., Demarest, N. J. 1910.
- Bowles, Chas. W., Kerby, Oregon. 1903.
- Bowles, J. H., Gregson House, Santa Barbara. 1903.
- Boyce, John J., Box 142, Berkeley. 1910.
- Boyer, Edgar, Box 418, Sparks, Nevada. 1911.
- Braislín, Wm. C., M. D., 556 Washington Ave., Brooklyn, N. Y. 1910.
- Brandreth, Courtney, Ossining, N. Y. 1911.
- Braner, W. G., 717½ W. Jefferson St., Los Angeles. 1911.
- Brewster, William, 145 Brattle St., Cambridge, Mass. 1904.
- Brooks, Allan, Okanogan Landing, B. C., Canada. 1906.
- Brown, C. Emerson, Boston Soc. of Nat. History, Boston, Mass. 1911.
- Brown, D. E., Room 11, Federal Bldg., Tacoma, Wash. 1909.
- Brown, Dudley H., 166 Parnassus Ave., San Francisco. 1911.
- Brown, Wm. J., 250 Oliver St., Westmont, Quebec, Canada. 1911.
- Brown, W. W., Jr., 1033 Key West St., Los Angeles. 1909.
- Bryant, Harold C., 2508 Haste St., Berkeley. 1910.
- Burnett, W. L., Box 691, Ft. Collins, Colorado. 1910.
- Burnham, Dr. Clark, Bushnell Place, Berkeley. 1907.
- Burnham, Mrs. Clark, Bushnell Place, Berkeley. 1907.
- Burns, Frank L., Berwyn, Pa. 1909.
- Burt, H. C., Santa Paula. 1910.
- Burtch, Verdi, Branchport, N. Y. 1910.
- Buturlin, Sergius A., Wessenberg, Esthonia, Russia. 1909.
- Caduc, Eugene E., 14 Derne St., Boston, Mass. 1911.
- Camp, Chas., Sierra Madre. 1909.
- Carpenter, Nelson K., Box 127, Escondido. 1901.
- Carriger, Henry W., 69 A Walter St., San Francisco. 1895.
- Carriker, M. A., Jr., American Museum Natural History, New York City, N. Y. 1911.
- Case, C. M., 7 Holcomb St., Hartford, Conn. 1911.
- Chamberlin, Willard, Box 288, Williams, Ariz. 1906.
- Chambers, W. Lee, R. D. 1, Box 73 D, Los Angeles. 1897.
- Chapman, Frank M., Amer. Mus. Nat. Hist., Central Park, New York City, N. Y. 1903.
- Childs, John Lewis, Floral Park, N. Y. 1904.
- Clark, Josiah H., 238 Broadway, Paterson, N. J. 1910.
- Clarke, Rowena A., Kirkwood Branch, "Seven Gables", St. Louis, Mo. 1911.
- Clay, C. Irvin, Box 353, Eureka. 1910.
- Clifton, H. T., 871 N. Lake Ave., Pasadena. 1904.
- Coale, Henry K., Highland Park, Ill. 1907.
- Coggins, Herbert L., 776 Mission St., San Francisco. 1910.
- Cohen, Donald A., Alameda. 1894.
- Colburn, A. E., 744 So. Broadway, Los Angeles. 1905.
- Cooke, Wells W., Biol. Survey, Washington, D. C. 1911.
- Cooper, James S., 826 53rd St., Oakland. 1903.
- Craven, Jesse T., 811 Roosevelt Ave., Detroit, Mich. 1909.
- Crosby, Maunsell S., Grasmere Farms, Rhinebeck, N. Y. 1911.

- Currier, Ed. S., P. O. Drawer 21, St. Johns, Multnomah County, Oregon. 1904.
- Daggett, Frank S., 109 So. Elmwood Ave., Oak Park, Ill. 1895.
- Dalglish, John J., Brankston Grange, Alloa, Scotland. 1910.
- Davenport, Mrs. Elizabeth B., Lindenhurst, Brattleboro, Vt. 1911.
- Davis, Evan, Orange. 1894.
- Davis, J. M., 811 O St., Eureka. 1908.
- Dawson, W. Leon, R. D. 3, Box 83, Santa Barbara. 1906.
- Day, Chester S., 15 Chilton Road, West Roxbury, Mass. 1910.
- Dean, W. F., Three Rivers. 1901.
- Deane, Rutliven, 135 Adams St., Chicago, Ill. 1904.
- Deane, Walter, 29 Brewster St., Cambridge Mass. 1907.
- Dearborn, Ned, Linden, Md. 1909.
- Dewey, C. L., care of Anto. Fire Prot. Co., Whitestone, Long Island, N. Y. 1910.
- Dickey, Donald R., 407 Olcott Place, Pasadena. 1910.
- Dickey, Samuel S., 31 S. West St., Waynesburg, Pa. 1911.
- Dille, F. M., 325 16th St., Denver, Col. 1903.
- Dixon, Joseph, Escondido. 1904.
- Du Bois, Alexander Dawes, 401 S. Aurora St., Ithaca, N. Y. 1911.
- Duprey, H. F., Dixon. 1907.
- Durfee, Owen, Box 125, Fall River, Mass. 1911.
- Dutcher, Wm., 990 Central Ave., Plainfield, N. J. 1905.
- Dwight, Jonathan, Jr., M. D., 134 W. 71st St., New York, N. Y. 1904.
- Eastman, Lient. F. B., 10th Inftry., Ft. Thomas, Kentucky. 1904.
- Edson, J. M., Marietta Road, Bellingham, Wash. 1911.
- Esterly, C. O., Occidental College, Los Angeles. 1908.
- Evermann, Barton Warren, Bureau of Fisheries, Washington, D. C. 1911.
- Ferris, H. H., Care of Y. M. C. A., Lake Geneva, Wisconsin. 1910.
- Finley, Wm. L., R. F. D. 1, Box 60 A, Milwaukie, Oregon. 1900.
- Fischer, E. J., 720 E. 10th St., Los Angeles. 1910.
- Fisher, Dr. A. K., Dept. Agri., Washington, D. C. 1904.
- Fisher, Miss Elizabeth W., 524 Walnut St., Philadelphia, Pa. 1910.
- Fisher, Prof. Walter K., Box 373, Palo Alto. 1900.
- Flanagan, John H., 392 Benefit St., Providence R. I. 1904.
- Fleming, J. H., 267 Rusholme Road, Toronto, Ontario, Canada. 1910.
- Follett, Richard E., 84 State St., Boston, Mass. 1909.
- Forrest, E. R., 357 N. Main St., Washington, Pa. 1910.
- Fortner, J. C., Jr., Brawley. 1910.
- Fowler, Frederick H., Palo Alto. 1901.
- Frazier, J. F., Audubon, Iowa. 1911.
- Frost, A. H., 255 W. 74th St., New York City, N. Y. 1910.
- Fuertes, Louis A., Cornell Heights, Ithaca, N. Y. 1904.
- Gane, Henry Stewart, Santa Barbara. 1903.
- Gardner, Leon L., Claremont. 1911.
- Gault, Benj. T., Glen Ellyn, Ill. 1905.
- Gay, Harold S., Valardena, Durango, Mexico. 1901.
- Gifford, Edw. W., Cal. Acad. of Sci., San Francisco. 1904.
- Gilman, M. French, Sacaton, Arizona. 1901.
- Goldman, E. A., Dept. of Agriculture, Washington, D. C. 1901.
- Goldman, Luther J., Orosi. 1908.
- Goodwin, Rev. S. H., Box 284, Provo, Utah. 1910.
- Gould, Jos. E., 5 Clifton St., Norfolk, Va. 1909.
- Grant, Chapman, N. Y. Aquarium, Battery Park, New York, N. Y. 1906.
- Grant, U. S., 4th, Salem Center, Westchester Co., N. Y. 1909.
- Granville, Fred, 3414 Pasadena Ave., Los Angeles. 1911.
- Grey, Henry, R. F. D. 2, Box 154 A, San Diego. 1901.
- Grinnell, Joseph, U. C. Mus. Vert. Zoology, University of California, Berkeley. 1894.
- Groesbeck, Charles E., Venice. 1897.
- Guion, Geo. Seth, Napoleonville, La. 1911.
- Halladay, Daniel S., 729 Central Bldg., Los Angeles. 1910.
- Hamilton, Dr. B. A., Highland Park, Ill. 1911.
- Hann, H. H., Mt. Hood, Oregon. 1909.
- Hanna, Wilson C., Box 146, Colton. 1902.
- Harris, R. Park, care of Wm. Wood, Renton, Wash. 1909.
- Hawver, Dr. J. C., Box 214, Auburn. 1909.
- Hazard, R. G., Peace Dale, R. I. 1909.
- Heinemann, Oluf J., 1662 Grove St., San Francisco. 1908.
- Heller, Edmund, U. S. Nat. Museum, Washington, D. C. 1894.
- Helme, Arthur H., Miller Place, Suffolk Co., N. Y. 1911.
- Henderson, Hon. Jmnius, Box 398, Boulder, Colorado. 1909.
- Henshaw, H. W., Dept. of Agriculture, Washington, D. C. 1909.
- Hersey, L. J., 2121 West 34th Ave., Denver, Colorado. 1909.
- Holland, Harold M., Box 515, Galesburg, Ill. 1901.
- Holt, Wm. L., Banning. 1909.
- Hoover, Theodore J., 1 London Wall, London, E. C. England. 1898.

- Howard, O. W., Box 1177, Los Angeles. 1895.
 Howell, Alfred Brazier, 250 N. Orange Grove Ave., Pasadena. 1908.
 Howell, B. F., Jr., R. F. D. 1, Boonton, N. J. 1909.
 Howes, Paul G., Stamford, Conn. 1910.
 Howsley, L. B., Nyssa, Oregon. 1909.
 Hoxie, W. J., 1522 Bull St., Savannah, Ga. 1911.
 Hubbs, Carl L., R. D. 1, Box 288, Turlock. 1910.
 Huey, Lawrence, 32nd St. & Clay Ave., San Diego. 1909.
 Hunter, J. S., Union Hotel, San Mateo. 1903.
 Illingsworth, J. F., 126 Catherine St., Ithaca, N. Y. 1896.
 Ingersoll, A. M., 832 5th St., San Diego. 1895.
 Irving, F. N., 306 W. 36th St., Savannah, Ga. 1910.
 Isham, C. Bradley, 30 E. 63rd St., New York, N. Y. 1909.
 Jackson, Thos. H., 304 N. Franklin St., West Chester, Pa. 1911.
 Jackson, Willis H., Pescadero. 1901.
 Jacobs, J. Warren, 404 S. Washington St., Waynesburg, Pa. 1909.
 Jay, Alphonse, 1622 Pennsylvania Ave., Los Angeles. 1901.
 Jay, Antonin, 1622 Pennsylvania Ave., Los Angeles. 1901.
 Jesse, Dr. R. L., Philo, Ill. 1909.
 Jewett, Stanley G., 472 Bidwell Ave., Portland, Oregon. 1909.
 Johnson, Frank Edgar, 16 Amackassin Terrace, Yonkers, N. Y. 1911.
 Johnson, Miss Myrtle E., National City. 1908.
 Jonas, Coleman, 1023 Broadway, Denver, Colorado. 1910.
 Jones, Prof. Lynds, Mus. of Oberlin College, Oberlin, Ohio. 1911.
 Jordan, A. H. B., Lowell, Wash. 1911.
 Jordan, Dr. David Starr, Stanford University. 1902.
 Judson, W. B., 409 Mason Opera House, 127 S. Broadway, Los Angeles. 1894.
 Julien, Miss Lillian M., Yreka, Siskiyou Co. 1901.
 Kaeding, Geo. L., Box 93, Eureka, Nevada. 1903.
 Kaeding, Henry B., Candor, N. C. 1895.
 Kellogg, Miss Louise, 1253 Grove St., Oakland. 1911.
 Kellogg, Prof. Vernon L., Stanford University. 1901.
 Kennard, Frederic Hedge, Dudley Road, Newton Centre, Mass. 1911.
 Kermode, F., Provincial Museum, Victoria, B. C. 1911.
 Kessing, Lawrence R., 1430 Santa Clara Ave., Alameda. 1899.
 Keyes, Prof. Chas. R., Mt. Vernon, Iowa. 1900.
 Kimball, H. H., 1527 M. St., Fresno. 1909.
 Knickerbocker, Chas. K., 445 N. Sacramento Ave., Carpenter Sta., Chicago, Ill. 1905.
 Knowlton, Dr. F. H., U. S. Nat. Museum, Washington, D. C. 1910.
 Kofahl, Harry J., 123 Los Angeles St., Los Angeles. 1909.
 Kofoid, Prof. C. A., University of California, Berkeley. 1909.
 Kohler, Louis S., 98 Watsessing Ave., Bloomfield, N. J. 1909.
 Lamb, Chester C., Yermo. 1899.
 Lane, F. M., 346⁷ Blackstone Ave., Fresno. 1911.
 Law, J. Eugene, Hollywood. 1900.
 Lelande, H. J., 246 Wilcox Bldg., Los Angeles. 1897.
 Linton, C. B., 125 W. Ocean Ave., Long Beach. 1906.
 Littlejohn, Chase, Redwood City. 1909.
 Loomis, Leverett M., Cal. Acad. of Science, San Francisco. 1902.
 Love, Chas. A., 3353 22nd St., San Francisco. 1901.
 Luce, Geo. W., Haywards. 1904.
 Luther, Clarence H., 8 McIlroy Bldg., Fayetteville, Ark. 1909.
 Mailliard, Ernest C., Bank of California, San Francisco. 1909.
 Mailliard, John W., 300 Front St., San Francisco. 1894.
 Mailliard, Joseph, 1815 Vallejo St., San Francisco. 1895.
 Marsden, H. W., Witch Creek. 1905.
 Massey, Herbert, Ivy Lea, Burnage, Didsbury, Manchester, England. 1909.
 Matthews, Dr. Ellen, 142 Kenwood Ave., Glendale. 1901.
 McAtee, W. L., Biological Survey, Dept. of Agriculture, Washington, D. C. 1907.
 McGregor, R. C., Bureau of Science, Manila, P. I. 1893.
 McKechnie, F. B., Ponkapog, Mass. 1909.
 McLain, R. B., Market and 12th St., Wheeling, W. Va. 1897.
 McQuilling, W. S., 125 N. Fair Oaks Ave., Pasadena. 1909.
 Mearns, Maj. Edgar A., U. S. Natl. Mus., Washington, D. C. 1905.
 Meeker, Jesse C. A., 51 Washington Ave., Danbury, Conn. 1907.
 Meister, H. D., Swanton, Ohio. 1909.
 Mershon, W. B., Saginaw, Mich. 1911.
 Messenger, G. H., Linden, Iowa. 1910.
 Miller, Prof. Loye Holmes, State Normal School, Los Angeles. 1905.
 Miller, Mrs. Olive Thorne, 5928 Hayes Ave., Los Angeles. 1911.
 Miller, W. DeWitt, American Museum Natural History, New York, N. Y. 1909.
 Miner, Dr. H. N., Upper Lake, Lake County. 1903.

- Mitchell, Dr. Louis J., Trude Bldg., Chicago, Ill. 1909.
- Mitchell, Dr. Walton I., 321 Barnes Bldg., Wichita, Kas. 1909.
- Moran, R. B., 661 Waverley St., Palo Alto. 1897.
- Morcom, G. Fream, 1815 N. Raymond Ave., Pasadena. 1904.
- Mueller, Carl, Marysville. 1911.
- Munk, Dr. J. A., 337½ S. Hill St., Los Angeles. 1909.
- Nehrling, H., Gotha, Orange Co., Florida. 1911.
- Nelson, E. W., Bureau Biol. Survey, Dept. of Agriculture, Washington, D. C. 1904.
- Newbury, F. E., 921 Shreve Bldg., San Francisco. 1904.
- Newkirk, Dr. Garrett, 501 Slavin Bldg., Pasadena. 1900.
- Nichols, J. T., Columbus Ave., and W. 77th St., New York, N. Y. 1909.
- Nicholson, Donald J., Orlando, Florida. 1911.
- Noack, H. R., 309 Perry St., Oakland. 1901.
- Norris, Joseph Parker, Jr., 2122 Pine St., Philadelphia, Pa. 1911.
- Norris, Roy, 725 N. 10th St., Richmond, Ind. 1911.
- Oberholser, Harry C., 1445 Girard St., N. W., Washington, D. C. 1904.
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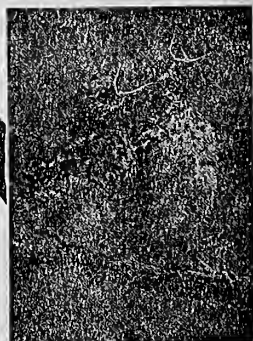
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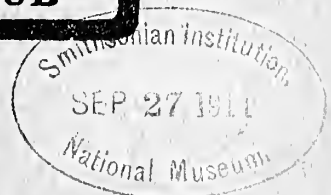
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COOPER ORNITHOLOGICAL CLUB



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A HYBRID QUAIL

By M. E. PECK

WITH ONE PHOTO

AN INTERESTING hybrid quail, evidently *Oreortyx pictus plumiferus* x *Lophortyx californicus californicus*, was secured by Mr. Geo. D. Peck, April 1, 1911, on Silves River, Harney Co., Oregon, about two miles above the town of Burns. The specimen is a male in high plumage, and was one of a small flock of quail that a man had been feeding about his place during the winter. Whether there were any other hybrids in the flock, or whether the rest were all *O. p. plumiferus*, was not made out. This bird was killed, apparently, by flying against a telephone wire. It was mounted by Mr. Peck while fresh. A flock of *L. c. californicus* was seen near the place where it was secured, and according to Dr. Hibbard, of Burns, they are found throughout that section of the state. Dr. Hibbard has a mounted specimen in his collection. *O. p. plumiferus* is distributed rather locally through the Harney Valley, but does not seem to occur on the surrounding mountains, at least not on the upper course of the Silves.

The following is a detailed description of this hybrid:

Back, scapulars, and wings above deep ash, strongly suffused with olivaceous brown anteriorly, purer posteriorly; tail clear dark ash; inner edges of tertials light buffy; crown and nape ashy, the former with an olive brown wash, the latter with obscure mesial spots of blackish and minute wavy markings of black and white; forehead and lores soiled whitish, the latter with fine black lines; a black superciliary stripe, continuous with black markings of lores; a whitish stripe above and behind the black, passing backward above the blackish auriculars to sides of occipital region; chin and throat black, except a small, ill-defined area of mixed chestnut and black on upper throat, the black extending on sides of head to posterior angle of eye, and bordered all around by a white stripe, which is broadest on sides of

head. Sides of neck like nape; lower neck, chest and fore breast nearly pure dark ash, or slate-gray; passing on lower breast into white, the feathers narrowly edged with black; more posteriorly the borders becoming broader and mixed with chestnut, and the white markings laterally assuming the form of large round spots; sides like back, but with some buffy edgings above, forming a narrow indistinct stripe, and with large conspicuous v-shaped spots of chestnut, the borders of which are not sharply defined; abdomen mainly pale grayish buff; crissum rich cinnamon



Fig. 41. HYBRID QUAIL: RESULT OF THE CROSSING OF THE MOUNTAIN AND VALLEY QUAILS

buff, the feathers with black mesial stripes. The plumes of the crest are two, narrow, broadening gradually toward the tips, moderately recurved, 61 mm. in length. The bill and feet are essentially like those of *O. p. plumiferus*, except that the former is less robust and the curve of the tomia is more gradual. The measurements are: length, 288; wing, 132; culmen, 12; tarsus, 31; middle toe and claw, 41.

If this hybrid be compared point by point with the two parent forms, there

will be found a remarkably even balance of characters derived from each; this is especially true of the coloration. In size it more nearly approaches the larger species, but the tarsus is the same length as that of *L. c. californicus*. Interesting results might be obtained from a study of series of specimens from the same locality. *

SOME BIRDS OF THE SAN QUENTIN BAY REGION, BAJA, CALIFORNIA

By ALFRED B. HOWELL

SAN QUENTIN BAY is a body of water some five miles wide at its greatest width, and seven miles long, situated midway between Lat. 30° and 31° N. With the exception of a very narrow and tortuous channel the water is but a few feet deep, and at low tide the extensive mud and sand flats which are exposed make ideal feeding grounds for vast flocks of waders. It is the winter home also of hordes of ducks. To the eastward lies a plain thirty miles long, which gently slopes upward until ten miles away it is gradually lost in the foothills of the San Pedro Martir Mountains. This plain being rather barren and dry has few forms of bird life except at its lowest portion where there is a series of fresh water lagoons. Between the bay and the sea lies a strip of wind-blown sand.

From April 26 until May 3, 1910, I was at the village of San Quentin; and from July 19 until the 23d we were anchored in the bay. The following statements hold good for both visits unless otherwise stated.

I passed San Martin Island (opposite the bay) at 4:30 a. m. on April 26. Black-vented Shearwaters (*Puffinus opisthomelas*) were swarming around the boat, circling in their characteristic way, while a great many could be seen leaving or returning to the hillside where a large colony was evidently nesting. Cassin Auklets (*Ptychoramphus aleuticus*) and Xantus Murrelets (*Brachyramphus hypoleucus*) were also present in some numbers, while White-winged Scoters (*Oidemia deglandi*) were numerous both outside and inside of the bay. Pelicans (*Pelecanus californicus*) and both of the Cormorants (*Phalacrocorax a. albociliatus* and *P. penicillatus*) sailed past us, but not until we were well inside the bay did I see something which I have always longed to observe. A sandy tide island was black with cormorants, but it was too far away to determine the species. There were acres of them, scores of thousands, and after we had passed they began to leave in a long black ribbon, never varying in thickness or width, and continuing for more than an hour, by which time we had passed out of sight.

Twenty miles from land, on July 24, four Black-footed Albatrosses (*Diomedea nigripes*) put in an appearance as we were becalmed, and remained with us throughout the day, paddling about the boat, and investigating in the most friendly way imaginable. I threw bits of bread to them when they were within ten feet of me, but except for carefully examining it, they would have nothing to do with it. One of them continually craned his neck straight up as far as it would go, while swimming in circles around another. All four left for the open sea late in the afternoon, in the wake of two large whales.

At this time *Puffinus opisthomelas* seemed to be absent, but on the 19th I wit-

* Mr. Geo. D. Peck has generously donated this specimen to the University of California Museum of Vertebrate Zoology, in which it is no. 19113 of the ornithological collection.—H. S. S.

nessed a flight of what were presumably Sooty Shearwaters (*P. griseus*) which took about five hours in passing.

In April, at the lagoons to which I referred above, there were numerous Pied-billed Grebes (*Podilymbus podiceps*), Green-winged Teal (*Acttion carolinense*), Shovellers (*Spatula clypeata*), Pintails (*Dafila acuta*), Lesser Scaups (*Morila affinis*), and Ruddies (*Erismatura jamaicensis*); also the ever-present Coot (*Fulica americana*), while a few Brant (*Branta nigricans*) lingered in the bay. I have it on the best of authority that the latter are present in incredible numbers during the winter months.

The Western Gull (*Larus occidentalis*) is common here, but at my later visit *Larus heermanni* was just as numerous, mainly in immature plumage but many adults also. Royal Terns (*Sterna maxima*) were everywhere and the natives told me that they breed in the locality. Several Great Blue Herons (*Ardea herodias*) were seen, and at least two Snowy Egrets (*Egretta candidissima*). One of these exhibited considerable curiosity at our whale-boat as we were sailing down the bay, and circled about it five times at no greater distance than forty feet before it was satisfied. This individual was in beautiful breeding plumage, with very long "aigrettes".

Light-footed Rails (*Rallus levipes*) were common in the marshes, as I could tell from their tracks, and on April 27 I found a set of seven fresh eggs. Some smaller form of rail was also present but I was unable to tell to what species it belonged. Foot-prints only were seen. Four Black-necked Stilts (*Himantopus mexicanus*) were busy in the shallow waters of the lagoons at the last-mentioned date, Killdeer (*Oxyechus vociferus*) were breeding, and in July a number of Western Willet (*Catoptrophornis s. inornatus*) were investigating the sandy beaches. In both the months that I was present there was a large flock of Long-billed Curlew (*Numenius americanus*) numbering some two hundred birds I should say, and the residents informed me that they had remained throughout the spring. Snowy Plovers (*Aegialitis nivosa*) were fairly swarming, and a few of both the Black and Frazar Oystercatchers (*Haematopus bachmani* and *H. frazari*) were to be found on the rocks at the mouth of the bay.

Several Mourning Doves (*Zenaidura m. carolinensis*), Turkey Vultures (*Cathartes a. septentrionalis*), Burrowing Owls (*Speotyto c. hypogaea*), Roadrunners (*Geococcyx californianus*), Rufous Hummingbirds (*Selasphorus rufus*), Ravens (*Corvus c. sinuatus*), Western Meadowlarks (*Sturuella neglecta*) and one Kingfisher (*Ceryle alcyon*) were seen, and Tricolored Blackbirds (*Agelaius tricolor*) haunted the tules.

Two pairs of Arkansas Kingbirds (*Tyrannus verticalis*) were nesting in the trees of the village and kept up a continual clatter. From what I heard, Dwarf Cowbirds (*Molothrus a. obscurus*) had evidently been common during the winter, but I saw only two of them, and glimpses were had of a few Scott Orioles (*Icterus parisorum*) in some scraggy trees on the plain.

A fact which impressed me as being strange was the total absence of House Finches, nor did I meet them in the mountains and foothills east of San Quentin in the winter of 1908. This is not the limit of their range, however, as true *Carpodacus m. frontalis* has frequently been taken between the country south of here and Lat. 28° N.

Belding Sparrows (*Passerculus beldingi*) were abundant in the marshes, frequenting especially the neighborhood of the pier. Gambel Sparrows (*Zonotrichia l. gambeli*) were still present at my first visit, and I was surprised to find a single male Black-chinned Sparrow (*Spizella atrogularis*) so close to the coast. In April,

Bell Sparrows (*Amphispiza belli*) were sparingly scattered in pairs over the plain, and in July they were in family parties and easily the commonest bird.

In the former month Western Martins (*Progne s. hesperia*) were around the water-holes, as were several Tree Swallows (*Iridoprocne bicolor*), while Barn (*Hirundo erythrogastra*) and Cliff Swallows (*Petrochelidon lunifrons*) were setting up house-keeping in the village. Two pairs of Rough-winged Swallows (*Stelgidopteryx serripennis*) were found breeding in the bank along the bay, and as far as I can ascertain, this is the first time that the latter species has actually been found breeding on the peninsula, although it apparently does so clear to Cape San Lucas.

California Shrikes (*Lanius l. gambeli*) are common residents here, and far up into the mountains. The warblers were represented by one each of the Yellow (probably *Dendroica a. brewsteri*, although I am not sure), and the Black-throated Gray (*D. nigrescens*), both of which were seen in the pepper trees not a hundred yards from the shore.

Mearns Thrasher (*Toxostoma c. mearnsi*) is the resident subspecies beyond a doubt, but the three individuals which I saw in the heavier brush were so wary that I was unable to get a shot at them. The 1910 A. O. U. Check-list gives the range of this form as "Lower Sonoran Zone", but in the San Pedros, February 1908 I found them to be tolerably common nearly to the higher limit of the Upper Sonoran Zone where I discovered an incomplete set of two eggs and an unfinished nest. These were among straggling pines on the bench-land at over three thousand feet.

Pallid Wren-tits (*Chamaea f. henshawii*) were occasionally seen, and Western Gnatcatchers (*Polioptila c. obscura*) were common.

SOME COLORADO HORNED OWL NOTES

By EDWARD R. WARREN

WITH ONE PHOTO

MR. KEYES'S paper in the January CONDOR, "A History of Certain Great Horned Owls", brought to my mind my own experience with a family of the Western Horned Owl (*Bubo virginianus pallescens*) near Paonia, Delta County, Colorado. While some account of these was published in the *Wilson Bulletin* for September 1903, (A Nest of the Western Horned Owl), I have ventured to rewrite my recollections, and add a few other notes thinking they may prove interesting.

Paonia is situated in the valley of the North Fork of the Gunnison River, at an altitude of about 5,700 feet. The valley itself is quite wide, with mesas on either side, and then low hills gradually increasing in altitude. In the valley, where not cultivated, are sagebrush and greasewood, with cottonwoods along the river; on the hills are cedars and pinyons. The soil is largely an adobe, which when eroded forms more or less substantial cliffs or bluffs.

The nest was in a niche in the face of an adobe bluff a couple of miles up the North Fork Valley from the town. This bluff was somewhere about forty feet high, and the nest-site a little more than half way below the top. I was told that the birds had nested there for several years. It was on the eighth of May, 1901, that I made my first visit. As my friend and I approached the bluff we saw one of the parent birds sitting at the mouth of the hole, but it flew away before I had a chance

to use the Reflex camera on it. We had brought a rope along with us, and going to the top of the bluff we found a fence post which some ranchman had left handy. We appropriated it and stuck it in a hole a prairie dog had dug; then making a loop in the rope to put a leg through, and taking a turn or two around the post, I started over the edge, my friend paying out the rope. On the first trial I missed the nest so far that I could not get to it, and went on down to the bottom, and then returned to the top to start over. The second time I landed where I wanted to, but it was not a pleasant trip; 'dobe is nice and sticky when it is wet, and makes beautiful dust when dry, and this was dry, consequently in these two trips I collected plenty of dust. It went down the back of my neck, into my pockets, boots, everywhere it could find an opening, and I had my doubts as to whether the plate-

holders were tight enough to keep it out.

Arriving at the nest I found a shelf about six feet wide and four deep, sloping somewhat toward the outer edge. Crouching in the far corner were two young owls, just passing from the downy into the feathered stage. I had a camera sent down and made an exposure, the result of which I promptly christened "The Heavenly Twins" as soon as I had developed the negative. As their situation was not good for photographic purposes I tried to move them into a position where the light was better. They made no resistance to being moved, beyond snapping their bills, but one fluttered down to the foot of the cliff after I had moved it, so I went on down myself. The fall had not hurt it, as, while it could not fly, it could use its wings enough to break the fall.



Fig. 42. YOUNG WESTERN HORNED OWL, ABOUT SIX WEEKS OLD

At the bottom I made a few exposures, the bird assuming those graceful(?) attitudes which it is the habit of young owls to do in such circumstances, fluffing up its feathers and making itself as big as two. After examining it we left it where it was, thinking the parents would take care of it.

The next day we went there and found the young one in the nest, but no sign of the other. There was an adult in a tree close by, which a couple of Sparrow Hawks were mobbing. We took the bird from the nest home with us, making a cage from a large packing box, and I had good opportunity to study it for several days, until I left Paonia. If the picture I took of it at the house (Fig. 42) is compared with Mr. Keyes's owls on page 15 of the January CONDOR, it will be seen

that it is in about the same plumage as the bird on the left, and therefore presumably about the same age, forty-one to forty-five days. I had no data myself for making any sort of a guess at it.

The youngster seemed to thrive fairly well in captivity. We picked out a tough old rooster and killed it for his benefit. The feeding was more or less simple. While the bird would sometimes take pieces which were offered him, I found in the end that the quickest method was to take him in hand, wearing gloves as a most necessary precaution against those sharp claws which he showed a perfect willingness, not to say anxiety, to test on one, and forcing open the bill, poke pieces of chicken down his throat until I thought he had a sufficiency for the time being. And I want to assure my readers that none of that chicken was wasted except the feathers, head, and legs. Everything else went down that bird's throat. Pieces of neck a couple of inches long were choice morsels. I was there until the thirteenth of May, it being the tenth when we first fed the bird, but during that time no pellets were cast up in the cage, which I thought rather strange as so many bones had been fed to it.

After I went away my friend kept the owl until it was well grown, and it finally escaped, but apparently hung around the neighborhood, and was shot while stealing chickens at a place close by. I suppose we were to blame for its having acquired a taste for the birds, and hence for its untimely end.

I rigged up a perch, and occasionally took the bird out to photograph and study. The following I copy from my notes made at the time. "It stands about twelve inches high. The body plumage is mostly down, but the wing and tail feathers are well grown, and about half out of their sheaths. The ear tufts usually stand up about one-half inch but sometimes three-quarters of an inch. The feet and legs are thickly covered with a yellowish or light buffy down. The whole of the body down, both above and below, is barred similar to the adult, and is fully two inches thick on the breast. This down is a light yellowish brown, but light gray on the tips. The wing coverts are brownish yellow, with dark, nearly black, bars a quarter of an inch wide. The primaries and secondaries are as dark as the bars of the coverts, with still darker bars. The tail similar. The face markings and feathers are just beginning to show." No material change took place during the few days I had the bird under observation, nor did it become especially tame.

In 1902 I was in that region again, but did not stay at Paonia, but several miles away. April 4 I made a trip to the nest site, and found a fresh eggshell at the foot of the cliff, but had no time for, nor way of investigating just then; however, I was glad to see this indication that the nest was occupied. Several days after, on the thirteenth, I was able to make another visit, seeing an adult at the nest as we came to it, but it flew away when I started down over the bluff on the rope. Even the post we had used the year before was still there. Very kind of that ranchman to leave it for me.

I found three young in the nest, the largest nearly as large as a domestic pigeon, the smallest about two-thirds the size of the largest. Possibly it was hatched on the fourth, the day I found the shell below the nest. This smallest bird was covered with down exclusively, but the other two had their pin feathers started. They snapped their bills at me a little, but made no other hostile demonstration. Photography was rather difficult work, for I had to stand near the crumbling edge of the shelf, and hang onto the rope for a support in case of the ground giving way, and manipulate the camera at the same time.

Such nest construction as there was consisted of a sort of platform at the back of the cavity, in such a position that the sun would not beat on it until late in the

afternoon (the cavity faced in a westerly direction), and this platform was apparently leaves and cedar bark covered with dirt. As a food supply there were the hindquarters of a cottontail rabbit, a pocket gopher (*Thomomys*), and three young Pinyon Jays, just about large enough to leave the nest. The heads of these latter were missing.

When I passed through Paonia in 1903, I had no time to investigate the nest, even if it was not probably too late in the season, June first.

While staying at Gaume's ranch in the northwestern part of Baca County, the last of May, 1905, a pair of Horned Owls had two young in a hole or small cave in the sandstone bluffs which formed the back of the corrals. I could see at times an adult and young bird, and at times both the young, sitting at the edge of the hole. I estimated this as thirty feet above the bottom of the bluff, and ten below the top. I did not visit the place itself, though I could have done so easily enough, but put it off too long, and then the time came for me to leave. I first saw the place May 20; on the 24th I found on the hill above and back of the nest a dead young owl.⁶ My notes say that its body was covered with down, and the wing feathers about half grown out. I did not see any birds about the nest after this.

The people at the ranch told me that the owls had never molested their poultry though there were many chickens of all sizes and ages running about everywhere below the nest. This seems rather strange, considering the reputation of the birds as poultry thieves, and for general destructiveness. Perhaps the owls appreciated the fact that their existence depended on their good behavior, and acted accordingly.

MAY NOTES FROM SAN JACINTO LAKE

By G. WILLETT and ANTONIN JAY

WITH THREE PHOTOS

ON THE morning of May 27, the present year, the writers left Los Angeles by automobile for a short ornithological trip, our objective point being San Jacinto Lake, or Mystic Lake as it is called on most maps, which is situated in west central Riverside County, California. This lake is in the San Jacinto Valley, at an altitude of about 1500 feet. It is in reality nothing more than a slough or sink, being only about two miles long and from a quarter to a half mile wide. In no part of it is the water more than waist deep.

Along the shores and for a hundred or more feet out into the water is a luxurious growth of marsh grass, which is a feeding ground for numerous birds that are partial to frog's eggs and pollywogs, mosquitos and other insects. It is also a breeding ground for coots, grebes and some of the ducks. At the east end of the lake are extensive tule beds, in some places so thick that they are almost impossible to penetrate. In these tule thickets are found the main nesting colonies, and the abundance and variety of the breeding birds makes this locality one of the most interesting of its kind in southern California. The lake has been previously visited by several ornithologists, among them being A. M. Ingersoll and W. B. Judson, who visited it in June, 1897, and O. W. Howard and H. J. Lelande, who were there in the summer of 1910. From information furnished us by them we were well posted in advance as to what birds we might expect to find there. We were

also fortunate enough to find several species not noted by either of the above mentioned parties.

We arrived at the lake at about 3:00 P.M. on May 27 and secured permission from the foreman in charge of the adjacent ranch to camp on the shore and pursue our ornithological studies.

We immediately donned our wading apparel and started into the tule beds on our preliminary tour of investigation. By the time we were forced to desist on account of darkness, we had arrived at a general idea of the most favorable nesting localities, and after a hastily prepared supper we rolled up in our blankets to dream of the good things in store for us on the morrow. We arose at daylight on the 28th and occupied that entire day with camera and collecting boxes. By nightfall we had gone over the entire ground with a fair amount of thoroughness, and



Fig. 43. NEST AND EGGS OF LEAST BITTERN

after a good night's rest we packed our belongings and started on our return journey. We arrived at home in the afternoon well satisfied with the results of our trip. The list following comprises all the water birds seen, with notes on their abundance, nesting, etc. A few of the more interesting notes on land birds are also attached.

***Colymbus nigricollis californicus*.** Eared Grebe. About fifty pairs of these birds were found nesting here by A. M. Ingersoll and W. B. Judson on June 8, 1897. We found the birds fairly common and in full summer plumage, but were unable to find any nests; in fact we judged from their actions that they had not yet begun to breed.

***Podilymbus podiceps*.** Pied-billed Grebe. This species was very plentiful and many nests were found. In most cases the eggs had already hatched or were

hatching at the time. One young bird noted had just broken out of the shell and rolled over the edge of the nest into the water. On our approach he made frantic efforts to dive but was unable to get any more than his head under the water.

Hydrochelidon nigra surinamensis. Black Tern. Two birds were seen flying over the lake on the 28th. They gave no signs of breeding and were probably stragglers.

Querquedula cyanoptera. Cinnamon Teal. Very common in pairs feeding in the grass. No nests found.

Spatula clypeata. Shoveller. One or two pairs in breeding plumage were seen. This bird is frequently seen around southern California marshes in mid-summer, and probably breeds occasionally, although authentic nesting records are lacking at the present time.



Fig. 44. NEST AND YOUNG OF WHITE-FACED GLOSSY IBIS

Dafila acuta. Pintail. Fairly common and undoubtedly breeding. Although many of these birds were noted no nests were found, but on the 28th a female was seen with four small young.

Marila americana. Red-head. Breeding very commonly. We were much interested in the large number of eggs in the sets noted. Four nests found contained, respectively, fifteen, seventeen, eighteen and twenty-seven eggs. This last set was undoubtedly the product of at least two females, as there were seventeen eggs of one type and ten of another. In fact the ten eggs may not be Red-head's at all, as they resemble very much the eggs of the Pin-tail.

Erismatura jamaicensis. Ruddy Duck. Breeding plentifully in the tules. Many nests containing eggs were noted.

Dendrocygna bicolor. Fulvous Tree-duck. Several pairs were seen, but were

apparently not yet nesting. This is one of the latest breeding ducks in this vicinity.

Plegadis guarauna. White-faced Glossy Ibis. In nearly every patch of tules was a nest or two of this species, and in the patch farthest west which covered about a half acre, there must have been at least two hundred nests. They were built on bent down tules, and were composed of tule stalks and lined with marsh grass. They were situated from two to six feet above the water, the average height being about four feet. About half the nests examined contained young and most of the others held badly incubated eggs. A very few fresh sets were found but the height of the nesting season was past. The sets almost invariably consisted of three or four eggs. In one or two instances sets of two incubated eggs were noted, and three nests contained five eggs each, two nests six eggs each, and one nest had seven. It is probable that sets numbering more than five eggs were deposited by



Fig. 45. TYPICAL NEST OF WHITE-FACED GLOSSY IBIS

more than one bird. In fact they invariably showed two different types of eggs. The color of the eggs evidently fades with incubation, as the heavily incubated eggs are a much lighter blue than the freshly laid ones. This is probably the largest breeding colony of these birds in southern California west of the mountains.

Botaurus lentiginosus. Bittern. Rather common but no nests were found. The pumping note of this bird was heard continually, both day and night.

Ixobrychus exilis. Least Bittern. Rather common. Seven nests were found. These contained three sets of five eggs each, one set of which was hatching, one set of four, badly incubated, one set of three, slightly incubated, and one fresh egg. The nests were flimsy affairs, built of small tule stalks and marsh grass, and were placed in the tules from three to four feet above the water. In one case the nest was built on top of an old blackbird's nest. In no case was the bird flushed from the immediate vicinity of the nest.

Herodias egretta. Egret. One bird was seen on a pond at the extreme west end of the lake on the morning of May 29.

Butorides virescens anthonyi. Anthony Green Heron. Two birds were seen flying over the marshes.

Nycticorax nycticorax naevius. Black-crowned Night Heron. Breeding in the tules in small numbers in company with the Ibis. Five nests were found on the 28th, all of which contained young except one, which contained three badly incubated eggs. In one case the young were nearly full grown. These nests were more substantially built than those of the Ibis, and were placed lower down in the tules, being from one to three feet above the water.

Rallus virginianus. Virginia Rail. One bird seen on the 28th.

Fulica americana. Coot. Nesting abundantly. Many young birds were noted and several nests containing fresh eggs were found. One thing that impressed us as being very strange was the fact that no nests of the Florida Gallinule (*Gallinula galeata*) were found nor were the birds seen. This bird, which breeds so commonly in many parts of southern California in company with the Coot, was, if not entirely absent, at least very rare.

Oxyechus vociferus. Killdeer. Common along the shores of the lake.

Aluco pratincola. Barn Owl. Fairly common in the more dense of the tule thickets.

Chordeiles acutipennis texensis. Texas Nighthawk. We both agreed that we had never seen this species so abundant as it was in this vicinity. In the evening they were noted in great numbers catching insects over the surface of the lake.

Cypseloides niger borealis. Black Swift. On the evening of May 28, a little before sunset, a flock of eight or ten of these birds circled over our camp for several minutes. They were close enough to allow us to positively establish their identity.

Yellow-headed, Tricolored and San Diego Red-wing Blackbirds were nesting abundantly in the tules. Fresh eggs were found and full grown young were noted.

FIELD NOTES FROM SOUTH-CENTRAL CALIFORNIA

By H. S. SWARTH

WITH ONE PHOTO

IN PURSUANCE of the investigation into the mammal fauna of the San Joaquin Valley which the Museum of Vertebrate Zoology of the University of California undertook during the past spring (see Grinnell, CONDOR XIII, 1911, p. 109), the writer of this spent in the field the time from May 5 to June 6. Though mammal collecting was the prime object of the expedition, a few birds were also preserved, while notes were kept on all the species encountered; and it seems worth while to place on record some of the scattered information acquired regarding the details of distribution of certain of the species met with in the region we traversed.

During this last month of the expedition collecting was carried on at four points: at Bakersfield and McKittrick, in Kern County, and at Simmler and Santa Margarita in San Luis Obispo County. At Bakersfield our camp was established in the hills about eight miles north of the town, at the western edge of the oil field. These hills, carrying a sparse growth of grass, are otherwise almost entirely devoid

of vegetation, but we found some small areas scantily covered with low brush. At this point I found the Sage Thrasher (*Oroscoptes montanus*), Leconte Thrasher (*Toxostoma lecontei*), California Sage Sparrow (*Amphispiza nevadensis cauescus*), and Brewer Sparrow (*Spizella breweri*).

Two Leconte Thrashers were secured on May 7, an adult male and a juvenal male, the latter with wing and tail feathers not yet at their full length, and undoubtedly hatched somewhere in the immediate vicinity. These were all of the species that were met with. On May 13 two Sage Thrashers were seen in the same vicinity, and one of them, an adult male, was secured. The Sage Sparrow and Brewer Sparrow occurred wherever there was any brush, but, from the nature of the surroundings were not plentiful. Both species were remarkably shy and hard to approach, but could frequently be heard singing in the distance.

Two rather hurried visits to the willow-covered river bottom just outside the town of Bakersfield, on May 6 and 10, disclosed the presence, in large numbers, of such species of birds as are found in similar situations throughout southern California—*Vireo pusillus*, *Guiraca caerulea salicarius**, *Zamelodia uelanocephala*, *Buteo lineatus elegans*, *Pipilo maculatus megalonyx*, and others. Song Sparrows (*Melospiza uelodia heermanni*) were exceedingly abundant, and specimens of both adults and young were taken. There were a number of Dwarf Cowbirds (*Molothrus ater obscurus*) flying around. The males were going through the usual courting antics, uttering their ridiculous squeaky "song", and strutting about with raised wings and spread tail, and there can be no doubt that they were breeding in the vicinity. Specimens were secured.

Our second station was at McKittrick, where we remained from May 17 to '22, all our collecting being done within two miles of the town. McKittrick is at the edge of the hills, on the extreme south-western border of the San Joaquin Valley. The surrounding country is much more densely covered with brush than at Bakersfield, but there is practically no water except such as is pumped from deep wells, and consequently no agriculture anywhere in the region. Several Leconte Thrashers were seen here, and two secured, a full grown juvenal on May 18, and an adult on May 21. Birds were few in numbers at this point, about the commonest species being the California Sage Sparrow (*Amphispiza b. cauescus*), which was distributed in moderate numbers through the chaparral.

May 22 to 29 were spent at Simmler, on the "Carrizo Plains", a little valley some twenty miles west of McKittrick, and separated from the San Joaquin Valley by a range of hills rising to a height of about 4000 feet. It is an intensely uninteresting region ornithologically, for practically the only vegetation is the covering of "fox-tail" and "broncho grass" that extends uninterruptedly for miles, and consequently the only common bird is the Horned Lark (*Otocoris a. actia*), which finds peculiarly congenial surroundings here. Nearly all the other species observed were in the immediate vicinity of ranch houses, where tracts of cultivated ground, together with the planted shade trees and the buildings, gave shelter to various birds. At the Pimental Ranch, where we were staying, an Arkansas Kingbird (*Tyrannus verticalis*) had built its nest on a gate post, where it was revolved part way around several times a day, as the gate was opened and shut. Another of this species placed her nest in the yard, on one of the telephone poles peculiar to this region. A post is driven into the ground and two narrow strips of board nailed, one on each side, the upper ends of which, fastened together, support the wire. The nest was placed on the post, between the two sheltering strips, just such a structure as the shrike's nest described in the May CONDOR (page 111), from the neighboring San Joaquin Valley. This nest was only about three feet from the

* See Grinnell, Proc. Biol. Soc. Wash., XXIV, June 16, 1911, pp. 163-164.

ground, and not more than ten feet from the bench by the house, where six or eight men washed three times daily, each time considering it their duty to see how the Kingbird's family duties were progressing. In spite of this scrutiny the eggs hatched before we left, and there was every prospect that the young would prosper.

I had occasion to visit the Painted Rock at the south end of the valley, on May 26 and 27, and found a surprising number of birds there, the more strikingly so after the long dreary drive over dusty roads, with but little to see except the everlasting Horned Larks flitting persistently along before the horses.

The rock rises abruptly from the surrounding plain to a height of about 100 feet, and is something of a local landmark, partly from its conspicuousness, and partly from the Indian paintings with which it is decorated. A colony of at least a hundred pairs of Cliff Swallows (*Petrochelidon lunifrons*) was the most conspicuous feature of the avian population of the rock, many times that number of nests being plastered thickly on its east face. With them were several pairs of White-throated Swifts (*Acrornantes melanoleucus*). A nest of Say Phoebe (*Sayornis sayns*) with four eggs, was found on a little sheltered shelf, and a second pair of the birds seen. Several pairs of House Finches (*Carpodacus mexicanus* from-

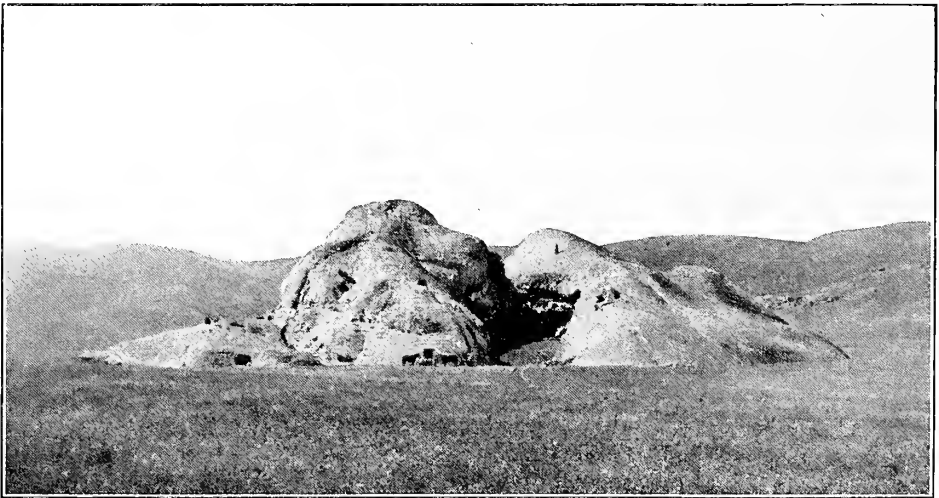


Fig. 46. PAINTED ROCK, CARRIZO PLAINS, SAN LUIS OBISPO COUNTY, CALIFORNIA

talis) flitted about, bunches of straw protruding from various cracks showing where their nests were. A Raven (*Corvus corax sinuatus*) flew croaking from her nest on a ledge near the top of the rock, but it was in too inaccessible a spot to be reached very easily. The only additional species observed was the Arkansas Kingbird, but I found unmistakable feathers of Barn Owl (*Aluco pratincola*), Prairie Falcon (*Falco mexicanus*), and a large hawk, probably *Buteo swainsoni*. At a ranch house about a mile from the rock a pair of Bullock Orioles (*Icterus bullocki*), and a number of English Sparrows (*Passer domesticus*) were seen.

A few water birds were seen about a small fresh water pond by the roadside—three Night Herons (*Nycticorax n. naevius*), an Avocet (*Recurvirostra americana*), several Killdeer (*Oxyechus vociferus*), and a flock of about thirty Northern Phalaropes (*Lobipes lobatus*). Two of the latter secured were in full breeding plumage, as the entire flock appeared to be. At a subsequent visit to the pond a few days later, the Avocet, Herons and Killdeer were still there, but the Phalaropes had nearly all departed, only about ten remaining, so they were probably still migrating, even at this late date.

In the belt of low brush surrounding the "soda lake" in the center of the valley there were a few California Sage Sparrows breeding, and also a few Brewer Sparrows. I found one nest of the former containing three newly hatched young on May 25. An adult and a full grown juvenal collected here, are unmistakably *Amphispiza u. canescens*.

Driving westward from Simmler to Santa Margarita we passed quickly into a well wooded and well watered region, with a correspondingly abundant and varied bird life. At the San Juan River we entered groves of large oak trees, harboring such species as the California Woodpecker (*Meclanerpes f. bairdi*), California Jay (*Aphelocoma californica*) and Bluebird (*Sialia mexicana occidentalis*). Near Poso at the head of the Salinas River, a few Song Sparrows (*Mclospiza u. santae-crucis*) appeared, seen thereafter in suitable places along the road, and, in some numbers, in the vicinity of Santa Margarita. The last Song Sparrow we had seen had been at Bakersfield, where *hccrmanni* was abundant. As seen from the car window, suitable country for the species extends westward from that point, with some interruptions, as far as Buttonwillow. From Buttonwillow to Poso is a gap of about fifty miles, where, from the almost total absence of water, no song sparrows exist.

At Santa Margarita we found more species of birds and a greater number of individuals by far than at any other point visited by the expedition. The varied nature of the surrounding country—willow-bordered stream, brush-covered hills, and the rolling valley, thickly dotted with live oaks—produces a correspondingly varied avifauna, and our list of species observed was a long one, considering the short time spent at this point, May 30 to June 6.

The Yellow-billed Magpie (*Pica nuttalli*) was abundant in the hills south of town, where adults and young were secured. In the San Joaquin Valley this species had been encountered at just one place during the three months of collecting: at a point some ten miles northeast of Los Banos, Merced County (the San Luis Ranch), where I saw four on March 21, and again on March 23. I was told that they were abundant in the immediate vicinity, but the country was flooded at the time, so as to be inaccessible.

Other species observed in the immediate vicinity of Santa Margarita, and at what would seem to be a low altitude (998 feet) for them during the breeding season, were the Blue-fronted Jay (*Cyanocitta stelleri frontalis*), Thurber Junco (*Junco oreganus thurberi*), and California Pigmy Owl (*Glaucidium gnoma californicum*), specimens of the two former being collected. Additional birds seen at this point were Western Martin (*Progne subis hesperia*), Cliff Swallow, Violet-green Swallow (*Tachycineta thalassina lepidula*), Slender-billed Nuthatch (*Sitta carolinensis aculeata*), Hutton Vireo (*Vireo huttoni*), Lutescent Warbler (*Ermi-vora celata lutescens*), Lawrence Goldfinch (*Astragalinus lawrencei*), California Woodpecker, Nuttall Woodpecker (*Dryobates nuttalli*), Willow Woodpecker (*Dryobates pubescens turati*), Red-shafted Flicker (*Colaptes c. collaris*), Western Bluebird, and Cooper Hawk (*Accipiter cooperi*).

Most of these were seen under such circumstances as indicated without a doubt that they were breeding; considering the time of year it is fair to assume that practically all were.

AN EARLY SPRING TRIP TO ANACAPA ISLAND

By HOMER C. BURT

WITH ONE PHOTO

WITH a week's supply of provisions on board, the writer, in company with Mr. Sidney Peyton, brother of a fellow Club member, and Mr. Walter Harrison, left Ventura harbor Tuesday morning, March 14 of this season (1911) on the launch "Ana Capa", owned by Mr. Ray Webster of Ventura. Our plans were to spend a few days on Anacapa Island that we might get better acquainted with the several pairs of Bald Eagles (*Haliaeetus leucocephalus*) that make the island their home. We had planned on getting away earlier in the month but owing to the long siege of rain and stormy weather we have had this spring, Mr. Webster was unable to bring the launch up from San Pedro where it had been in anchorage for the winter.

The day was fine and we had a very pleasant trip across the channel, making the run to the harbor in a little over three hours. After landing our provisions and blankets on the beach we all got busy making things comfortable in the little shanty up under the cliffs, which Mr. Webster kindly gave us the use of during our stay on the island. A good dinner was soon fixed up for us by "George" the boat's engineer, who proved to be quite a chef; and we afterward enjoyed more than one fish and mutton dinner fixed up by him and Mrs. Webster, who came over two days later to stay until the sheep shearing was over.

The tide being low, Peyton and myself decided to spend the afternoon exploring the south side of the west island, while the rest of the party were going up on top to see how the band of sheep had fared for the past several months. We succeeded in working our way well around the island, a feat which can only be done at low tide, owing to the high cliffs towering above one all the way around. Cormorants and Western Gulls (*Larus occidentalis*) were common flying about or sitting on the rocks off the shore. A pair of Black Oyster-catchers (*Haematopus bachmani*) were flushed from a mussel bed on the rocks, but were too wary to allow us to get within gun-shot. We also flushed a Wandering Tattler (*Heteractitis incanans*) from among the rocks, which was knocked down by Peyton. Another Tattler was taken later near the same spot, both birds being males. There was much to interest one on all sides, so the afternoon quickly passed, and it was getting late when we got back to camp.

The other party arrived soon afterwards with good news which put us all in high spirits. They had located an eagle's nest on one of the high cliffs of the north side of the west island, with the old bird on the nest, so things certainly looked promising for the morrow.

We were up bright and early the next morning, Wednesday, and, loading ourselves with camera, shot-gun, lunch, and 130 feet of rope, we started up over the rough trail for the nesting site. Traveling was comparatively easy after reaching the top of the island, where there was a surprisingly heavy growth of clover and fox-tail grass, making a delightful home for the Island Horned Larks (*Otocoris a. insularis*) and Meadow-larks (*Sturnella neglecta*) which were common on all sides. No time was lost in reaching the top of the cliff above the nest, which turned out to be on one of the highest cliffs of the island.

It would have been impossible to pick out a wilder or more commanding site than the one selected by this pair of birds. One hundred and forty feet down from

the top of the cliff a pinnacle twenty-five feet high had been formed by the years of crumbling away of the rocks, and it was on the very top of this that the mass of sticks had been shaped into a nest. And there reaching from the base to about half way to the top of the pinnacle was another great pile of sticks which had no doubt been used for years as a home by the eagles, but had been deserted for the new site.

The rope, which was in two pieces, was tied together and one end dropped over the edge of the cliff, but it lacked about ten feet of reaching to the base of the pinnacle. Luckily for us though, there was a ledge on the face of the cliff down about 100 feet, which was wide enough to give a safe footing, and also giving the opportunity to get some photos of the nest at close range, as the top of the pinnacle stood out within thirty-five feet of the ledge.

Peyton went down first on the rope, taking the collecting pail and the shot-gun in case things got too warm for us. I followed next with the camera, and was soon on the ledge beside him. A photo was taken of the nest and the two eggs, which could be plainly seen in the cup-shaped place in the center of the nest. A section of the rope was next lowered down to us by Mr. Harrison, and with the assistance



Fig. 47. ARCH ROCK, AT THE EAST END OF ANACAPA ISLAND, CALIFORNIA

of this, Peyton got on down to the base of the pinnacle. By climbing up over the old nest he was soon on top of the pinnacle and reaching over after the two dirty white treasures, which were carefully packed away in the collecting pail.

The nest, which was about five feet across, was built up of sticks and limbs of all sizes up to the size of a man's wrist, the top being a soft bed of dead fox-tail grass. As there are very few trees on Anacapa, the sticks used in making the two nests must have been carried over from Santa Cruz Island, which lies about five miles to the west. From the size and amount of material used it must have been the accumulation of years, and required a great deal of labor and perseverance on the part of the old birds.

It was some relief when we got back on solid ground again with the set all safe. I have followed Mr. Peyton and his brother on some of their trips after White-throated Swifts and Ravens on the mainland, and though that's usually pretty rough work, I believe the Bald Eagles have them beaten for choosing rough nesting sites, this pair especially. The experience was worth the risks, though. It was a great sight from the top of the cliff. Looking across the channel one could plainly see mountains rising up on the mainland, the higher ranges, capped with

snow, adding to the scene. And it certainly looked a long way down to where the surf pounded against the bottom of the cliff.

We had expected trouble from the old birds while getting the eggs, but they kept well out over the water while flying back and forth, never coming closer than seventy-five yards while we were down at the nest.

After eating lunch we went on around the end of the island, searching the cliffs for possible Duck Hawk nests. As nothing of interest was found we started back over the trail for camp. A pair of Sparrow Hawks (*Falco sparverius phalaena*) was noted on the way. They seemed to be much out of place in that treeless place. A larger hawk was noted flying low over the cactus, which I was fortunate in bringing down with the shot-gun. It was later identified as a male Marsh Hawk (*Circus hudsonius*) by Mr. G. Willett.

Camp was reached in time to take a plunge in the surf before supper, which was very bracing after a strenuous day. The evening was spent in preparing the specimens collected on the trip. We had expected a big job in saving the set of eggs taken, but on blowing them found they were both infertile. Here rises a question for some of the learned ones. How long would the old bird have incubated the eggs before leaving them? The eggs had already been in the nest perhaps long enough to have been hatched, for they were badly nest stained, and the lining of the shell came out with the contents of the eggs.

The following day, Thursday, was spent in canvassing the middle island. Starting from camp we searched the cliffs along the north side of the island until we reached the point where the middle island is separated from the eastern by a small channel of water. At low tide a small beach is left bare between the two islands, but it is impossible to cross over on account of the high cliff on either island. With the field glass the cliffs were carefully scanned on the south side of the east end, and a second nest of the Bald Eagle was soon located by Peyton. This nest was built in a similar location to the first one found, being on top of a sharp pinnacle well down from the top of the cliff. Looking through the glass a white head could be seen rising up above the edge of the nest, and the old male was located sitting on the top of a cliff near by. Nothing could be done with that nest until a landing could be made on the east island, so we started back for camp along the crest of the cliff on the south side.

A pair of Duck Hawks (*Falco peregrinus anatum*) was flushed from one of the high cliffs about the middle of the island. They probably had a nest somewhere nearby, as they would not leave the cliff, but although we spent some time searching for it we were unable to locate it. As on the west island, we found the Island Horned Larks and Meadowlarks common along the top. A Mockingbird (*Mimus polyglottos leucopterus*) was also noted singing from the top of a bunch of cactus. Although none was seen by our party, Mr. Webster informed us that on several occasions he had observed Burrowing Owls on top of the island.

On returning to camp and telling of our find, Mr. Webster agreed to take us aboard the launch and land us down on the east end the following morning. We found Mr. Webster very willing to assist us in any way he could during our stay on the island, and he favored us in several ways in order to make our collecting successful. The Bald Eagles are grand birds from an ornithological standpoint, but they are looked upon as pests by the sheep owners. Mr. Webster informed us that several of his small lambs were destroyed every year when the young eagles were almost large enough to leave the nests.

We were aboard the launch and on our way to the east end by sunup the next morning. As the landing there is very poor we were anxious to get on the island

before any wind came up. It was agreed to come after us at noon, but we landed a good supply of water and provisions with us. There is no water on the east islands, so it is necessary to be prepared in case of a blow.

We were greeted by loud clamorings and flopping wings of a perfect swarm of Brown Pelicans (*Pelecanus californicus*) and Western Gulls, up on top of the island. This was the same place that was visited by some Cooper Club members in the summer of 1910. A number of pelicans were noted flying with long strips of sea weed in their bills, for mending the old nests, but none of them had begun to lay their eggs.

Our time was limited on the island, so we made directly for the eagle's nest located the day previous. The old male sighted us as we neared the cliff, and flew out over the water giving an alarm note repeated several times, but the female did not leave the nest until we peered down over the top of the cliff. As she sailed out over the water we gazed eagerly to see if there was a set of two or three eggs in the nest. Instead of eggs we spied two moving objects that looked like balls of downy cotton in the center of the mass of sticks and grasses. The young eagles looked to be about two or three days old. A half-eaten fish was lying on the edge of the nest, while several backbones of good sized fish could be seen scattered around. Not wishing to keep the old bird away from the nest too long we passed on around the island, leaving them in their glory.

Shortly after noon we sighted the launch returning for us, so everything was carried back down on the rocks at the foot of the cliff, and we were soon back on the launch bound for the harbor, I suppose to the relief of the Pelicans and Gulls, as they settled back down among the nests on top of the cliffs.

The afternoon was spent rounding up the sheep by Mr. Webster and the two shearers, so we volunteered to help. While driving some stray sheep out of one of the small rocky gulches running up in the island, Peyton located a Raven's (*Corvus corax sinuatus*) nest in the niche of a small cliff. The deeply cupped top of the nest was warmly lined with wool, but the eggs had not yet been laid. This I am sure was the only Raven's nest on the islands, for we pretty thoroughly canvassed them all.

Saturday, the 19th, we remained around the harbor fishing and getting our things together, as we were to be taken home the next morning, the weather permitting. So far we had been fortunate, as the weather had been very calm all week.

The launch had to be run up to the sheep shearers' camp at the west end of the island before leaving for the mainland, and Peyton and Harrison went along in it, while I remained at camp to finish packing up. While passing up the island, near the cliffs, a third nest of the eagles was located on the ledge of a cliff, and the old bird could be seen on it. It was a great temptation to stay another day on the island, but everything was packed and loaded on board, so we had to pass it up, and say good-by to Anacapa and the eagles.

FROM FIELD AND STUDY

Two Species New to California. Ovenbird. *Seiurus aurocapillus*. While engaged this spring in photographic work on the Farallones (*in re* the Farallone bird-group being prepared for the California Academy of Science), I had opportunity to observe several small bird waves, each of which brought us a motley assortment of eastern forms. On the 29th of May a strange

bird was reported to be fluttering about a large front room, recently vacated, in one of the light-keeper's houses. A party of us repaired to the spot, and one of the ladies, by a quick motion, seized the frightened bird in midair, and graciously presented it to me,—an adult male Ovenbird in prime feather. Another bird was seen outside the house half an hour later, and it haunted the general vicinity of the keepers' quarters during the remainder of our stay, five days. The specimen taken was prepared by Mr. J. Rowley, and is now in the Academy collection.

Black-throated Green Warbler. *Dendroica virens*. On the evening of May 29th I secured, at all too close range, a female of this species. It had settled momentarily upon the ground in front of the head keeper's house. Unfortunately, most of its head was shot off by a bunched charge, but "the remains" are now in the Academy collection to attest the validity of the record. Another specimen, also a female, was seen in company with such other migrants as Redstart, Magnolia Warbler, etc., on the afternoon of June 1st; but no attempt was made to secure it.—W. LEON DAWSON.

Swallow Notes from Fresno County, California.—Mr. Grinnell's record in THE CONDOR for May-June of a pair of Barn Swallows observed near Fresno on March 15 last, has caused me to put the following notes on record.

On the morning of March 19, 1905 the writer observed a single Barn Swallow (*Hirundo erythrogaster*) in company with several Tree Swallows circling about a pond some six miles north of Fresno. As it was the first one seen that spring it seemed probable that the bird had reached this place from some point to the north of us. My suspicions were partly confirmed during the fall of the same year when the Barn Swallows apparently departed toward the north. September 25 large numbers of them passed over at frequent intervals all day. They certainly appeared to be migrating but were travelling in a course directly opposite to that which they would be expected to pursue at that time of year. The following spring I had an excellent opportunity to watch for the first migrant, and was not greatly surprised on the morning of March 19, upon hearing a cheerful twittering overhead, to see a Barn Swallow travelling southward at a considerable height.

Is it possible that this swallow has two routes by which it enters this part of the San Joaquin Valley? Possibly in certain seasons the usual southern way is undesirable from some cause, and the birds enter the valley by a northern route. It would be interesting to learn from observers living north of Fresno, the dates upon which this swallow was first observed for the spring of 1906.

In Fresno County the Barn Swallows nest, almost without exception, under bridges, fastening their nests to the stringers over the water. The smaller bridges over all the irrigation ditches shelter from one to three or four pairs, while the species swarms by hundreds under the large ones that span some of the sloughs.

The Tree Swallow (*Iridoprocne bicolor*) is present in small numbers throughout the winter, but each year during January and February, I have observed a southward movement on the part of this species. Sometimes a single bird passes over but often two or three are seen together.

The Tree Swallow has been found nesting in sycamores along the San Joaquin river and in pine stubs at Shaver Lake.

On March 28, 1908 the writer found a pair of Violet-green Swallows (*Tachycineta thalassina lepida*) busily engaged in carrying nesting material into a cavity in a sycamore stub near the river about nine miles north of Fresno. Several other pairs were discussing the fitness of other cavities. This, I think, is rather early nesting.

My earliest record for the arrival of the Cliff Swallow (*Petrochelidon lunifrons*) is March 14 (1903 and 1904). A nesting colony was examined April 29, 1910 in which a number of nests held good sized young birds.—JOHN G. TYLER.

Man-o'-War Birds in Southern California.—On June 13, 1911, two immature Man-o'-War Birds (*Fregata aquila*), were caught with hook and line, by a fisherman, at the ocean end of the pleasure pier, Long Beach, California. The birds have the white heads, which, according to Cones Key, is the plumage of two year old birds of this species.

They are now, (June 14, 1911), on exhibition in B. A. Grant's "Animal Exhibit", under the Long Beach pleasure pier, and are doing well on a diet of fish.—C. B. LINTON.

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EDITORIAL NOTES AND NEWS

During the past summer the University of California Museum of Vertebrate Zoology has had two expeditions in the field, both in the state of California. This in addition to the party which, earlier in the season (March 6 to June 6) traversed the length of the San Joaquin Valley. Some of the ornithological results obtained by the latter (primarily a mammal collecting expedition) are published in the present, and in the last number of THE CONDOR.

Miss Annie M. Alexander and Miss Louise Kellogg, with assistants, spent three months in the high mountains of Siskiyou County, collecting birds and mammals, in continuance of work begun by them in Trinity County, during January and February. The series of specimens gathered includes some species new to the Museum collections, and others but scantily represented; while one species of bird was secured new to the state of California.

The special point of enquiry toward which the work has been directed is to ascertain the relationships of the fauna of the region with that of Mount Shasta on the one hand, and the Humboldt Bay region on the other. At the latter point the Museum had collectors working during the previous summer (1910); the Mount Shasta fauna has been the subject of exhaustive study by Dr. C. Hart Merriam.

J. Grinnell and W. P. Taylor, with T. I. Storer, H. A. Carr, and N. Stern as assistants, have been exploring the mountains between Bakers-

field and Mount Whitney since the middle of June. In two parties they traveled up different branches of the Kern River, finally meeting in the high mountains, and are to come out by way of Owen's Valley, on the eastern side of the range. The expedition has been highly successful in every way. At the last report received there were but two species of mammals known to occur in the region which had not been secured, and the bird collection is almost as comprehensive, at least as regards summer residents. The results will be of peculiar interest, both in relation to the collections already amassed from the southern California mountain ranges, and to those from the San Joaquin Valley.

California ornithologists will rejoice at the news that Mr. F. S. Daggett has returned to this state, and that there is a possibility of his making his home here once more. The Cooper Club will profit greatly by the renewal of his active participation in the affairs of the organization.

Dr. N. Dearborn, of the Biological Survey, has been spending part of the summer in California, in pursuance of the work of that Bureau, visiting the forest reserves of Santa Barbara, Los Angeles, and San Bernardino counties. His particular study is the determination of the extent to which the smaller rodents are detrimental to the planting operations of the Forestry Department, and devising ways of reducing their numbers where necessary.

Mr. Malcolm P. Anderson, who for some years past has been collecting birds and mammals in Asia for the British Museum, has recently returned to his home at Menlo Park, California. His work took him to the more remote islands of the Japanese archipelago, and also to the wilder parts of western China, and to Thibet.

PUBLICATIONS REVIEWED

A REVISION OF THE FORMS OF THE HAIRY WOODPECKER (*Dryobates villosus* [Linnaeus]). By HARRY C. OBERHOLSER. [=Proc. U. S. Nat. Mus., vol. 40, 1911, pp. 595-621, pl. 70 (map). Published June 3, 1911.] As a result of the careful examination of a very large series of these woodpeckers (1070 specimens) Mr. Oberholser increases the fourteen forms heretofore recognized, to twenty, three of the newly described subspecies occurring north of Mexico, in the territory covered by the A. O. U. Check List. Of the remaining three, two are from Mexico and one from Nicaragua.

Dryobates v. hyloscopus suffers the most in this readjustment, as it supplies the material for all three of the new North American forms—*D. v. orius*, type from Quincy, California, occurring in eastern Washington and Oregon, south to central California, *D. v. leucothorectis*, in central New Mexico, northern Arizona, and southern Utah, and *D. v. icastus*, a Mexican form ranging north to extreme southeastern Arizona and southwestern New Mexico. The

unfortunate *hyloscopus*, thus dismembered, is finally restricted to a slender thread of territory winding over parts of southern California and along the coast, except in the extreme northwestern corner of the state; and the threat implied in the statement that the type of the subspecies, from San Jose, California, is not really typical of any form, leads us to fear that it may even be cast out from this, its last refuge!

The name of the big Northern Hairy Woodpecker is changed to *Dryobates villosus septentrionalis* (Nuttall) on grounds which may or may not be considered adequate. The range of *D. v. picoides* is given as including Prince of Wales Island, Alaska, a view with which the present reviewer does not agree at all, for reasons already detailed elsewhere. Also the statements that *harrisi* is remarkably uniform in size and color, over its entire range, and that there is very little individual variation in the form, are not borne out by an Alaskan series at hand, evidently more extensive than the material from that region at the disposal of Mr. Oberholser.

However, these are matters of detail, and largely of opinion, but whether or not one feels inclined to give names to all of the rather slightly differentiated varieties here recognized, there is no question at all as to the value and excellence of Mr. Oberholser's work. Careful discrimination is required in the handling of a difficult group like the one under discussion, and we have in the present paper an accurate résumé of the problem. The descriptions and critical comments are such as will always be returned to by future workers, the key to the subspecies, contained in the introduction, is excellently devised (if all the individuals of a subspecies would only be "typical!"), and the map outlining the breeding ranges is a decidedly valuable feature of the paper.—H. S. S.

A REVISION OF THE FORMS OF THE LADDER-BACKED WOODPECKER (*Dryobates scalaris* [Wagler]). By HARRY C. OBERHOLSER. [= Proc. U. S. National Museum, Vol. 41, pp. 139-159, pl. 12 (map); published June 30, 1911.] As one of the results of Mr. Oberholser's study of this group "the six currently recognized races are here increased to fifteen." In place of *Dryobates s. bairdi*, heretofore considered to be the form ranging along the southern border of the United States, from Texas to southern California, we have here two races described, *D. s. symplectus*, the Texas Woodpecker, and *D. s. cacophilus* (type locality Tucson, Arizona), the form occurring in northern Mexico, western Texas, New Mexico, Arizona, and southern California. *Bairdi* is restricted to a comparatively limited area in central Mexico. Neither of the two subspecies regarded as inhabiting Lower California (*D. s. eremicus* in the north-

ern, and *D. s. lucasanus* in the southern half of the peninsula) is considered to occur in southern California, specimens from the Colorado Desert formerly identified as *D. s. lucasanus*, being now regarded as variants of *cacophilus* showing intergradation with *D. s. eremicus*.—H. S. S.

DESCRIPTION OF A NEW SPOTTED TOWHEE FROM THE GREAT BASIN. By J. GRINNELL. [= Univ. Calif. Publ. Zool., vol. 7, August 24, 1911, pp. 309-311.] The Towhee of northern Nevada, northeastern California and southern Oregon is here separated as a distinct form, under the name of *Pipilo maculatus curtatus*, type locality Pine Forest Mountains, Nevada. From *P. m. montanus* of Arizona and New Mexico it is distinguished by shorter wing and tail, and darker coloration; from *P. m. mcgallonyi* by somewhat paler coloration, greater extent of white markings, and much shorter hind-toe-and-claw. It is a migratory form, the summer range about as given above, while winter specimens were secured on the lower Colorado River.—H. S. S.

A NEW BLUE GROSBEAK FROM CALIFORNIA. By J. GRINNELL. [= Proc. Biol. Soc. Wash., vol. xxiv, June 16, 1911, p. 163.] The California Blue Grosbeak, here named *Guiraca caerulea salicarius*, (type locality Colton, San Bernardino County), is separated from *G. c. lazula* mainly on the smaller size and different proportions of the bill. The two forms are indistinguishable in color, both differing from *G. c. caerulea* of the South Atlantic States in the paler blue coloration of the male bird.—H. S. S.

EARLY SUMMER BIRDS IN YOSEMITE VALLEY. By J. GRINNELL. [= Sierra Club Bulletin, vol. 8, June, 1911, pp. 118-124.] A sketch of the birds observed in the valley during a ten days visit (May 22 to June 1, 1911). The species met with during this time, fifty-five in number, are listed at the end of the article; while of the more interesting or conspicuous ones, portions of life history or particulars of the manner of occurrence, are detailed in the body of the paper. The best find was a nest of the Calaveras Warbler; another, nearly as good, one of the Winter Wren.

The number of species noted seems to justify the conclusion that "in abundance and variety of its bird life Yosemite is at the very least as well provided for as any other part of the West of similar climatic and floral qualifications"; though the magnificent scenic attractions are so engrossing as to assist at first to a different impression.

The paper closes with a list of the five titles previously published relative to the birds of Yosemite Valley.—H. S. S.

For Sale, Exchange and Want Column.—In this space members of the Cooper Club are allowed one notice of about 35 words in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. Notices must be written plainly, on one side only of a clean sheet of paper. For this department address W. LEE CHAMBERS, *Eagle Rock, Cal.*

WANTED—Good skins of any of the Owls, especially certain of the rarer species, for which I can offer very desirable exchanges in skins or sets. Many other skins wanted. ALFRED B. HOWELL, 250 N. Orange Grove Ave., Pasadena, Cal.

FOR SALE—Complete sets of Condor, Bird-Lore, Auk, Nidologist, Warbler, Bittern, Country Life in America, Suburban Life; also volumes of Oologist, Osprey, O. & O., Audubon Magazine, Journal Maine Ornith. Soc., American Ornith., American Naturalist, National Geographic Mag. Offer \$1.00 for Bird-Lore Vol. 1 No. 2. LAUREN TREMPER, 136 No. Dewey St., Philadelphia, Pa.

BOOKS FOR SALE—Mrs. H. R. Taylor has a few books left from the library of H. R. Taylor and wishing to dispose of them at once will give some one a bargain. MRS. H. R. TAYLOR, 1343 Regents St., Alameda, Cal.

The Manager of the Cooper Club has a few damaged volumes of "The Condor" which will be sold at just one-half the regular price. All are complete but are either mused, torn or second-hand. They are bargains at the price. We have every volume except one. Some only lack covers to make them perfect.

FOR EXCHANGE—At a bargain, sets and singles of such species as Northern Phalarope, Semipalmated Plover, Am. Rough-legged Hawk, Snowy Owl, Raven, Snowflake, Lapland Longspur, Tree Sparrow, Am. Pipit, Gray-cheeked Thrush, etc., because one or more eggs are imperfect or a part of the set has been destroyed. I collect sets of birds of prey only, but also desire living turtles and certain other reptiles. J. D. SORNBORGER, Rowley, Mass.

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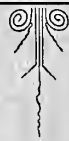
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A Magazine of Western
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Volume XIII November-December, 1911 Number 6



W.K.F.

COOPER ORNITHOLOGICAL CLUB

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THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XIII

November-December, 1911

Number 6

ANOTHER FORTNIGHT ON THE FARALLONES

By WILLIAM LEON DAWSON

WITH SEVEN PHOTOS BY THE AUTHOR



O BE SURE it was the writer's *first* fortnight, so that the word "another" must be understood as recalling the visits of other adventurers instead of former personal experience. The Farallones are classical ground, and their ornithological resources have been so frequently and ably discussed in the pages of THE CONDOR and elsewhere, that one hesitates to add his mite to the imposing array of published notes. This fact also must excuse the writer for assuming in his readers a general knowledge of the location, topography and history of the Farallones, as well as of the chief characteristics of its im-

mortal double quintette of breeding birds. But precisely because such a general interest has been aroused in this, the most populous breeding resort of the nearer Pacific Coast, a report of current conditions there may not be amiss.

Through the courtesy of the management of the California Academy of Sciences, which had permission to secure material for a magnificent "habitat group", the writer spent the fortnight, May 20 to June 3 inclusive, studying and photographing the birds of the Farallones.

The trip out was made in a "tug", properly written t_{ug} and \rightarrow^{u_g} or t_{u_g} (the last-named, known as the *descensus ad inferno*, being the most excruciating, both in fact and in retrospect). Neptune demanded toll, and in default of payment gave his hapless victim a sound thrashing, after the rude fashion observed by the Skua

and others. A salute of seventeen hundred Murres was fired upon our arrival (only the east battery participating, however); and we were introduced to the fourteen Farallonians, from Mr. Rosendale, the able head keeper, to baby "Snoozer" Cobb, the idol of the thirteen grown ups. But the birds! They are the real proprietors. The pungent odor of guano smites the nostrils at six cable-lengths remove; while ashore it is fairly stifling to the novice. From pinnacle and arch and ledge comes the faint uproar of the Murres, always crowding, bowing, craning, gabbling; "sea pigeons" hiss and "sea parrots" flit by in silent platoons; while over all rises the discordant scream of the sea gull, the irrepressible, the irreconcilable, the insatiable Western Gull.

Humans sit only by sufferance on the edge of this avian volcano, while everywhere, by day or night, birds shift and seethe and gyrate in multitudinous kaleidoscopic succession. Birds—*Birds*—*BIRDS*. It is a sight to be remembered, and no enthusiasm of utterance on the part of visitors can quite spoil it for you when your turn comes.

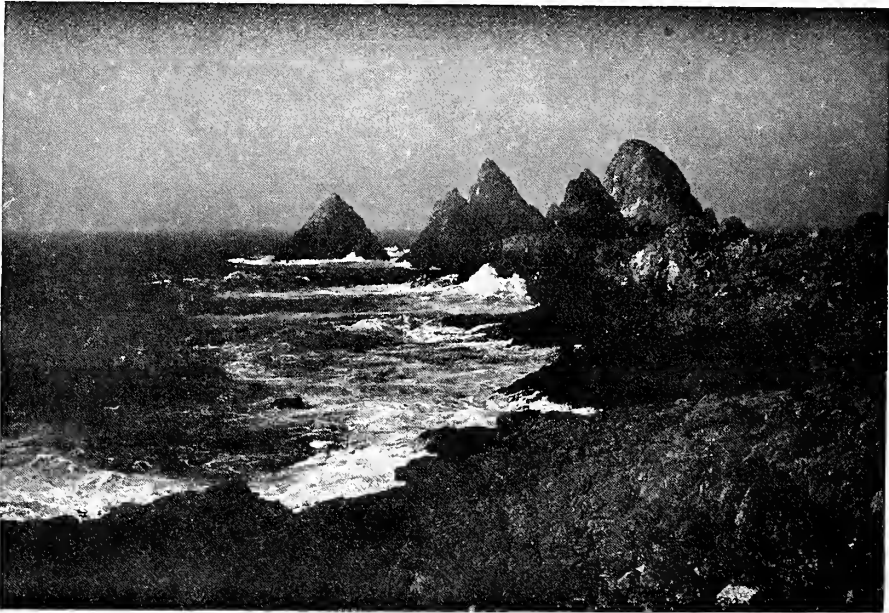


Fig. 49. IN ANGRY MOOD
LOOKING NORTHEAST TOWARD SUGARLOAF

The weather was charming the first day or so. Not a breath of air stirred, and the sun was burning bright,—insomuch that a mere gross of photographic plates looked insignificant beside the boundless opportunity. But on the third day the northwest wind tuned up. It blew with steadily increasing pressure until photography was not to be thought of, and out-of-door study of any sort became a test of endurance. The mercury registered 48° at night and rose to 52° daytimes. After eight days the north wind fell and we had dull weather from the southwest. This brought the migrants, a motley and a woe-begone company. There is no cover on the island save a bit of a grove of Monterey cypress near the siren, and a hedge about a tiny garden in the keeper's yard. Yet, misguided and bewildered, the frail creatures came, day after day, Alaskan migrants, wanderers from the mainland, and exiles from the far East. The occurrence of unusual eastern forms has been noted on these islands before. Indeed, at the present rate it would not be surprising if

practically every species of the eastern *Mniotiltidae* should report sooner or later at this inhospitable rock. We are not, of course, to suppose that it possesses unusual attractions for them. It is only that the slight percentage of alien blood always present in our coastwise migrations is here more readily, almost inevitably, detected.

As to the relative abundance of the staple forms the writer is ill-prepared to record conclusions. The Murres are said to be less abundant than in the days of the eggers. If this be so, it is because of the domination of the Western Gull—this and the ravages of the crude-oil plague. The region just outside of the Golden Gate is especially cursed by this unlawful practice, the cleaning out of the water (*and oil waste*) ballast of the "tankers" just previous to entering the harbor. That this is an active factor in bird destruction is attested by the abundance of oil-soaked carcasses which line the sparse beaches of the southeast Farallon. Murres are the chief sufferers, but Grebes, Loons, Scoters, and Pigeon Guillemots are frequent victims, and the destruction goes relentlessly on in winter as well as summer.

The statement sometimes made that Murres outnumber all other species combined upon the island is certainly ill considered. Cassin Auklets probably outnumber them two or three to one. The Petrels are a close second to the Auklets, and the Murres may come in third. Other resident species are represented in fair proportions,—all, that is, save the Farallon Cormorants. This colony has suffered from too much attention, human as well as Larine, and its numbers are slowly declining. But it is a very difficult task for humans to restore the "balance" of Nature. The wrinkled old dame is under no contract to maintain equality among the species, and *laissez faire* is perhaps the best motto for us. We can be virtuous (or at least moderate) ourselves, but we cannot settle disputes among Nature's children.

Below follows an irregularly annotated list of all the species observed on the southeast Farallon from May 20 to June 3, 1911.

1. **Gavia immer.** Loon. One adult seen in Fisherman's Bay within twenty feet of shore, June 2nd.

2. **Lunda cirrhata.** Tufted Puffin. Present throughout our stay and breeding to the number of several thousand. Although eggs, and these somewhat advanced in incubation, were to be found at the outset, there was a notable increase in numbers of these birds during the earlier days of our visit, and this movement did not culminate till about the 28th of May. Breeding is conducted chiefly on the West End and on the higher portions of Tower Hill. The birds have little opportunity for digging in earth, and little occasion for providing fresh burrows, since crannies and crevices of every sort abound. Many of these retreats have been worked in the softer strata of the rocks themselves, and bear evidence of occupation measured by cycles rather than by generations. Many eggs or sitting birds are visible from the surface, and some of the nesting sites are nothing more than the innermost recesses of niches and caves occupied by Murres.

3. **Ptychoramphus aleuticus.** Cassin Auklet. The Cassin Auklets are *everywhere*. Burrows predominate, but there is not a cleft, nook, crack, cranny, fissure, aperture, retreat, niche, cave, receptacle, or hidey-hole from the water's edge to the summit of the light-tower which is not likely to harbor this ubiquitous bird. The interstices of the stone walls contain them to the number of thousands. Every cavity not definitely occupied by puffin, petrel, or rabbit is tenanted by an Auklet; and in many cases quarters are shared. If one's imagination is not sufficiently stimulated by regular occurrences, it will be jogged by appearances in un-

expected places,—an old nest of Rock Wren or Pigeon Guillemot, an inner recess of a Murre cave, an abandoned spur of a Puffin burrow, an overturned wheelbarrow or neglected board lying on the ground, driftwood on the beach—anything affording the slightest prospect of protection or cover. A pile of coal, sacked up and awaiting transfer from landing to siren, was found to be full of them. Since this was the rule from center to circumference of this magic isle, we conclude that the Cassin Auklet is the commonest bird on the Farallones, and estimates of population anywhere short of one or two hundred thousand do not take account of the facts.

The Cassin Auklet seems incapable of controlling the force of its flight, and the wonder is that the birds are not every one of them dashed to pieces in a single night. In this respect they remind one of nothing else so much as beetles or moths, which come hurtling into the region of candle-light, crash against the candle-stick, and without an instant's pause begin an animated search afoot. This crash-and-crawl method seems not exceptional but characteristic in the Auklet. It was especially noticeable in the paved area just outside our workroom door. Crash! announced the arrival of another food-laden messenger from the unknown deeps. The impact of collision with the building invariably stunned the bird so that it fell to the ground, but it immediately began a frantic search, and, as likely as not, before you could lay hands on it, disappeared in a crack under the doorstep. "*Right here! Right here!*" from a certain spot under the flooring proclaimed the home-coming, and so enthusiastic would be the reception accorded the dinner-laden parent that for a time all human conversation was suspended.

Fresh eggs were the rule throughout our stay, but this was only the average, and every phase of departure was noted up to chicks half-grown. Not enough birds *without* eggs were discovered to establish the fact that the birds occupy their burrows for some days previous to deposition; but such I suspect to be the fact, as is the case with other monotocous species.

4. *Cephus columba*. Pigeon Guillemot. Present in small numbers from the first, but attaining a maximum of about two hundred June 1st. The gentle "sea pigeon" nests in crevices anywhere from about twenty feet above tide up to the summit of Tower Hill. Its favorite nesting range, however, is an immense rock-slide on the east slopes of Tower Hill. Quite contrary to any previous experience with these birds (in Washington), I found all the nests *carefully lined*, usually with rock flakes, sometimes with pebbles or bits of rusty iron.

5. *Uria troille californica*. California Murre. Because of its fabled abundance and its history of unexampled persecution at the hands of the "egggers", the liveliest curiosity possessed my mind regarding the present status and behavior of this species. In both matters I was destined to be disappointed. For some reason this Murre has not profited by full protection as might have been expected. It has neither increased in numbers nor gained in confidence. The fault lies, I think, chiefly with the gulls, which have profited enormously under near immunity from human attack. To be sure, the human is oftenest the occasion, but seldom the cause, of the wrong-doing. Our presence was hailed with glad acclaim by the gulls, who, though somewhat fearful for their own treasures, are always eager for an excuse to plunder "the ledges". In fact, the Larine outcry always seemed to be nine-tenths make-believe, being intended to alarm the galleries instead of voicing a personal anxiety. Obedient to the tradition, the Murres begin to shift and edge away when the gulls assure them that yonder object picking its way carefully over the rocks is dangerous. It looks harmless, but who knows? A gull swoops near to the ledge and shrieks, "Fly for your lives, you fools!" The timorous obey

promptly; the rest crowd to the edges. Fear becomes panic, and panic rout; while the gulls swarm down to feast on the abandoned eggs.

It is possible that conditions would improve were the island absolutely uninhabited. The "West End" is preserved from human invasion with a fair degree of rigor; but ten men marooned on government service require some little breathing space and cannot always wait on the affairs of foolish Murres. The tradition holds, and will till the end of time—or until such time as the Government decides which it will protect, Murres or Gulls.

There was a steady increase in the number of Murres hauling out upon the ledges up to May 30, when the movement ceased. The Murres enjoy a wide and practically general distribution throughout the group, but the larger colonies are on

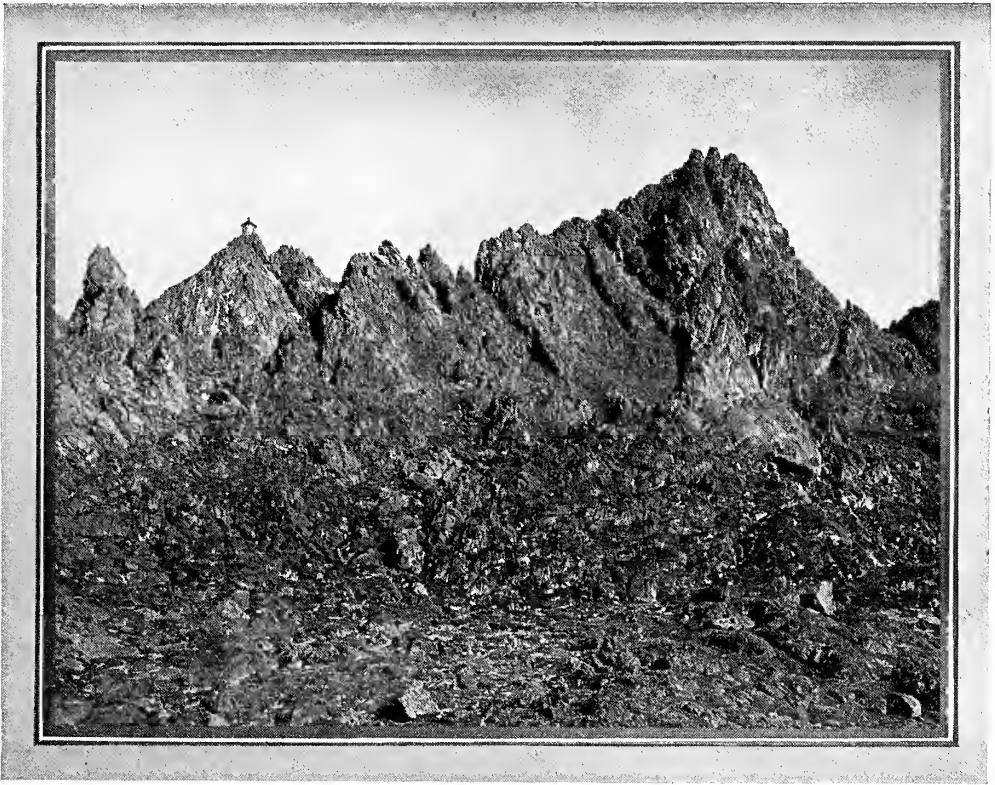


Fig. 50. A MOUNTAIN RANGE IN MINIATURE
VIEW ON SOUTHEAST FARALLON LOOKING SOUTH

the off-shore rocks and outermost promontories. Thus, Seal Rock, or "Saddle-back", as it is called locally, lying southwest from the keepers' houses, was black with them above the range of the lions. In like manner, Sugar Loaf and its associated rocks on the northeast presented most favorable conditions. A flat-topped rock at the extreme west end and the great arch hard by, perhaps came next in point of numbers, but the slopes and ledges on the north side of Maintop harbor thousands, and Indian Head became so popular latterly that we did not go near it. The "great Murre cave", likewise, at the extreme eastern end of the island, we did not dare visit latterly, although it is quite certain that it does not nearly measure up to its ancient standards in point of population.

A reliable estimate is difficult to make, but I doubt if over 20,000 Murres now haul out on the southeast Farallon and its outliers.

While reviewing a ledge one day in company with Mr. J. Rowley, I noticed a bird which apparently had its back to us while all the others were facing. Closer examination showed that it too was facing us. Its underparts were the same color that a Murre's back should be, sooty black. A lucky shot secured it, and it proved to be a male bird with breeding organs in active condition, a melanistic specimen without a trace of white in its plumage.

6. *Larus occidentalis*. Western Gull. These birds afforded the dominant note of life on the West End, the fashionable residence quarter of the Farallones. They nested anywhere from beach to pinnacle, and a careful examination of near a thousand nests discovered a singular uniformity of type in coloring of the eggs. This is evidently a closely inbred colony, free for ages from admixture or disturbing influences. I have seen a four times greater variation in a small colony of not forty pairs on a rock off the coast of Washington, debatable ground between *occidentalis* and *glaucescens*. While most nests contained three eggs, three clutches of four were found, the eggs being in each instance unquestionably the product of a single bird.

In several instances I detected cannibalism, if such a harsh term can be applied to a habit of sampling eggs of the same species. In each case the offender appeared to have leisure for the enjoyment of the unlawful feast, but it is an open question whether they were cases of piracy or worse. Certainly the gulls are very jealous of each other, and the shifting readjustment which accompanies the progress of the bird-man is always attended with many sharp passages-at-arms among the gulls. Conscience plays a proper part and the jealous owner always wins.

Possibly three thousand pairs nested this season.

7. *Larus heermanni*. Heermann Gull. Only one individual twice seen. The second time he was found in company with Western Gulls, a member of a Murre-marauding company.

8. *Oceanodroma kaedingi*. Kaeding Petrel. Our tents were finally pitched under the lee of Tower Hill on the south side, and within hailing distance of the Government Wireless Station. Near us were several half-ruined stone walls, the relics of occupation by the eggers, or possibly by their predecessors, the Russian sea-otter hunters. These walls resounded nightly to the incessant cries of Petrels as did every other wall on the island. On the evening of May 30, Leon Garland one of the wireless operators, secured a white-rumped petrel in his tent, whither it had been attracted by the light. On the morning of the 3rd of June, Mr. Garland brought in another Kaeding Petrel, which he had secured in one of these old stone walls near his tent, and he declared that the bird had been found sitting on an egg, although the latter was broken. Mr. Rowley joined forces with him and spent the best part of the day tearing down the walls of this and neighboring enclosures. Three more specimens were found along with considerable numbers of *homochroa*, which occupied the same area; and two eggs of each species, the first of the season, rewarded the search. Although precisely similar conditions obtain elsewhere, no other Kaeding Petrels were encountered on the Farallones.

9. *Oceanodroma homochroa*. Coes Petrel. Either this species has notably increased of late, or else earlier visitors were inclined to underestimate its numbers. We found them well distributed throughout the main island. Not only are all the stone walls alive with them, but they occupy the minor rock-slides along with the Cassin Auklet, and they even burrow in the level ground in front of the keepers' houses. In investigating the drift area on Franconia beach, we found almost

as many Petrels as Auklets skulking under logs and planks. In point of abundance they are easily third, possibly second on the island.

It is evident that these Petrels have a lengthy season of courtship during which they spend their nights ashore, chiefly in their burrows, and return to the sea daytimes. This is followed by a "honeymoon" period of some duration, presumably a week or more, in which both birds remain ashore all the time. As soon as the egg is laid incubation begins, and the other bird retires to sea to forage. Precisely what the division of labor is from this point on as between male and female remains to be determined, but it is certain that the male is often found alone upon the egg.

The former name, "Ashy" Petrel, is very misleading. Its use suggests a type of coloration similar to that of the Fork-tailed (*O. furcata*), whereas the general

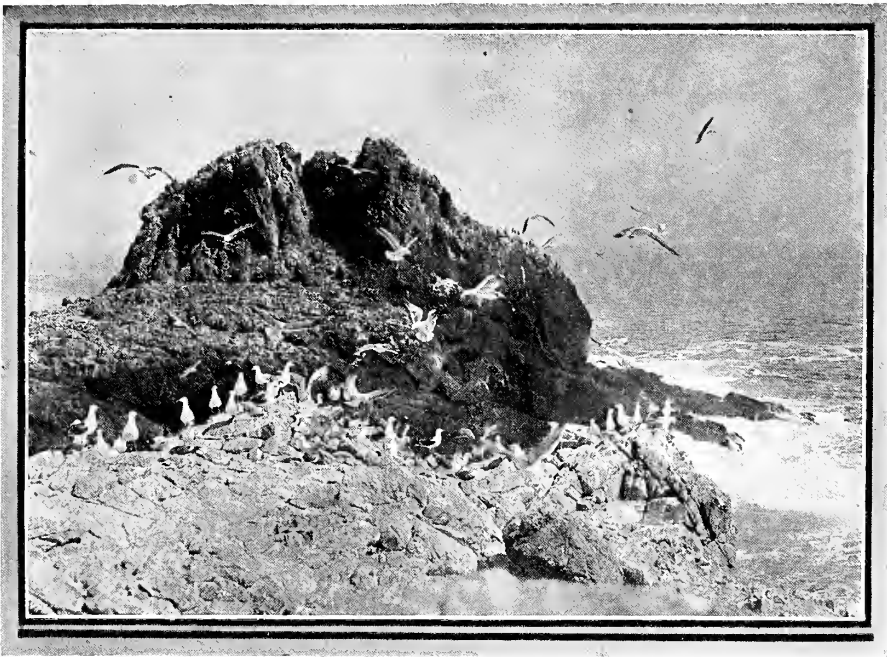


Fig. 51. THE BANQUET TABLE
WESTERN GULLS ROBBING A MURRE LEDGE
INDIAN HEAD IN THE BACKGROUND

cast of color is only a little less sooty than that of *kacdingi* or *leucorhoa*. It does incline to "plumbeous", but is much nearer black than "ashy". Several friends appealed to, agree with me that it is time for a correction, and the name of the original describer, Coues, is respectfully recommended.

10. *Phalacrocorax auritus albociliatus*. Farallon Cormorant. The colony on Maintop, the only one remaining in the Farallones, is now reduced to about thirty-five pairs, and of this number only fifteen were succeeding in raising families this year. The story of the steady persecution to which the confiding members of this historic colony have been subjected would not make a pretty one in print. The human pressure has been removed (nearly, not altogether) latterly; but the gulls are crowding it to certain extinction. The Shags are standing by their guns, and their bravery makes one long to do something on their behalf. By cautious

advances I was able to make friends with two of the most devoted mothers, and I could pause unquestioned within two feet of either.

Owing chiefly to depredations, nesting, at the time of our visit, May 21st, exhibited every stage from fresh eggs or empty nests to those containing young several days old. Our own judicious conduct disappointed the gulls, who stood about expectantly, awaiting their turn. No general exodus occurred at any time, but it was easy to note losses due to Larine vigilance during our absences. Only one bird, which we called "the bride", retained the earlier nuptial plumes. She was exceedingly wary, and her single egg having been abstracted by gulls, she and her mate deserted the colony outright.

In striking contrast with their kindred, the White-crested Cormorants (*P. a. cincinatus*) of the upper coasts, which invariably use sticks, these Farallon Shags employ only weeds and grass in nest construction. The chief ingredient is a coarse, yellow-flowered composite, known locally as Farallon Weed, and the resulting crater-shaped nest is not materially different from that of a Brandt Cormorant.

11. *Phalacrocorax penicillatus*. Brandt Cormorant. Fortunately for themselves these shags are exceedingly wary. It was only by stealth that the Academy staff could secure the necessary specimens for their group work, and a gun-shot always meant suspension of nest-building operations for a day or two thereafter. A few pairs occupied the old site on the northwestern slopes of Maintop, and a single egg was seen, May 21st; but the succeeding ten days witnessed a notable increase in their numbers. By June 1st they were all fairly at it, some 600 of them, and bound to succeed if not further molested.

This colony evidently occupied, last season, the extreme western end of the island, in the vicinity of the "great arch", as a number of wind-dried squab carcasses attested. Brandt Cormorants have no such strong local attachment as birds of the *P. aurilus* group, and are quite ready to shift camp for prudential, or it may be for sanitary reasons.

12. *Phalacrocorax pelagicus resplendens*. Baird Cormorant. These wiry little Shags were fairly well distributed along sufficient declivities throughout the West End. Nest-building was in progress at the time of our arrival, but no eggs were seen during our stay.

13. *Phalaropus fulicarius*. Red Phalarope. A page from my note-book under date of May 25th may be of interest:

"Oh, bring me a new dictionary! At least a dozen fresh-minted adjectives I require, caressives, diminutives, and felicitatives. Four Arctic emigrants, ticketed for waters in and about Peary's Pole, have adopted me for their god; and there is nothing they will not do for me, save keep outside the minimum focal length (about $2\frac{1}{2}$ feet) of my camera. Three Red Phalaropes, all females, I take it, although none of them is in highest plumage, and one Northern, also a female just under "high", are pasturing at my feet in a brackish pool some twenty feet long, ten wide, and two deep. The waters of the pool teem with a minute reddish crustacean (?), shaped like an ant, less than a thirty-second of an inch in length, and incredibly nimble. The insects progress by leaps, and are visible only at the moment of arrival. Yet these birds gobble them up one at a time with unerring accuracy, and with a rapidity which is nothing short of marvelous. The Reds work habitually at the rate of five dabs per second, i. e. 300 a minute; while the Northern, with a longer beak and a much daintier motion, works only half as fast. The birds are fast livers and they void the cloaca at intervals of two or three minutes, roughly guessed. The excreta are chiefly of a vivid rose-red color with

an attendant portion of pure white—the same in color, by the way, as those cast by the Murres along the east wall of Shubrick point.

“As I said, these birds will do anything for me. By stealthy approach and good behavior I have won their complete confidence, taking all the pictures wanted at focal length, the birds passing repeatedly within that distance as the camera is pointed diagonally down at them. After using up my plates I lay down by the water’s edge, and the birds repeatedly came nearer to my face than my hands were. Also, when I stretched my hand out slowly into the water, one ventured within six inches of it. Yet the Phalaropes are perfectly aware of my presence, and they give a little start or a warning peep every time an unusual movement or the slightest sound escapes me.”



Fig. 52. FARALLON CORMORANT BROODING YOUNG

Good-sized flocks of these birds were tossing about in the lee of the island almost continually during the prevalence of the northwest wind, and little wisps of them were frequently seen flitting to and fro between the indentations of the tide. Many birds were killed at night by striking against the single telephone wire which stretches east and west along the narrow portion of the island. Occasionally small groups of these Phalaropes were flushed from the ground, and while I was settled in the tent I several times saw them take refuge behind stones to avoid the sweep of the wind.

14. **Lobipes lobatus.** Northern Phalarope. Great shoals of these Phalaropes lay off-shore on the lee side of the island until the wind veered to the south.

Although naturally frailer than the Reds, birds of this species did not so frequently resort to the shore; and in the flocks which visited the tidal channels they were usually in the minority.

15. *Heteractitis incanus*. Wandering Tattler. This is one of the first birds to extend felicitations upon our arrival; and although not a resident, there is none on the Farallones more characteristic at this season, nor any better fitted to symbolize the wild isolation of the group. During the first week of our stay there were not less than ten birds of this species, well distributed, which quavered and teetered, or fled, as often as we approached the surf line. But their numbers had dwindled to two by June 1st.

Contrary to earlier statements these Tattlers do spend a considerable portion of their time upon the higher ground. The tiny boulder-strewn meadow surrounding my earlier camp (just east of Franconia beach) was a favorite resting place for them, and I am inclined to think the birds spent the night there, for some were invariably startled upon my first appearance mornings.

Having a common affection for the tide reefs, Wandering Tattlers are not infrequently found in loose association with Black Turnstones; but when put to flight they pay no attention whatever to the fortunes of their chance shipmates, nor to others of their own kind. Preferably, the Wandering Tattler, like Kipling's cat, walks by himself.

16. *Arenaria melanocephala*. Black Turnstone. Several small flocks—never more than six or eight birds at once—were seen. The Turnstones sat closer and flew farther when disturbed than the Tattlers; and I did not discover them elsewhere than on the dun-colored reefs. None were to be seen after June 1st, and I think not after the rise of the southeast breeze on the 29th of May.

17. *Zenaidura macroura carolinensis*. Mourning Dove. A single bird, wind-driven and desolate, was sighted on the morning of May 24th. It probably lingered through our stay, as it was several times reported by one of the keepers.

18. *Speotyto cunicularia hypogæa*. Burrowing Owl. A single individual, a sole survivor, we were informed, of a former small breeding colony, was several times noted upon the grassy flat south of the steam siren. The bird was almost black to appearance, and so, very desirable; but he proved to be correspondingly modest.

19. *Myiarchus cinerascens cinerascens*. Ash-throated Flycatcher. Two birds were seen haunting the cypress "grove" on the evening of June 1st, and a specimen was taken the following morning.

20. *Nuttallornis borealis*. Olive-sided Flycatcher. The most notable arrival of June 2nd. Several individuals were seen hawking at insects in situations which would much better have suited the Say Phoebe; and one was taken.

21. *Myiochanes richardsoni richardsoni*. Western Wood Pewee. On the morning of May 29th, the weather having moderated, and the wind having changed to the southwest, there was a notable invasion of the island by frail migrants, chief among whom were these Pewees, present to the number of a dozen or more. There was not room for them all in the tiny cypress grove, which alone offered congenial shelter, so they deployed over the rocks, seeking sustenance of the cliffs in quite unfamiliar fashion. Although so evidently ill at ease, none of the Passerine forms appeared to know when to leave or how to make their way to the mainland shore; and I am inclined to think that the majority of them wear themselves out miserably in a vain attempt to get adjusted to a strange environment rather than risk the dangers of further passage over seas.

22. **Empidonax difficilis difficilis**. Western Flycatcher. One taken and another seen near the siren on May 29th.

23. **Empidonax trailli trailli** (?). Traill (?) Flycatcher. An unknown *Empidonax*, certainly not *difficilis*, was seen on the 29th in company with a Western Wood Pewee, but it could not be secured.

24. **Corvus corax sinuatus**. Raven. The nest of the only pair of birds claiming residence on the island had been twice broken up this spring by zealous keepers in the name of their defenceless hens. (It is to laugh, raising *chickens* on the Farallones.) The birds lingered for some days, but evidently gave up and left for the mainland.

25. **Molothrus ater artemisiæ**. Cowbird. A solitary individual, marked down on the 1st of June and secured on the 2nd, is recognized by Mr. Grinnell as

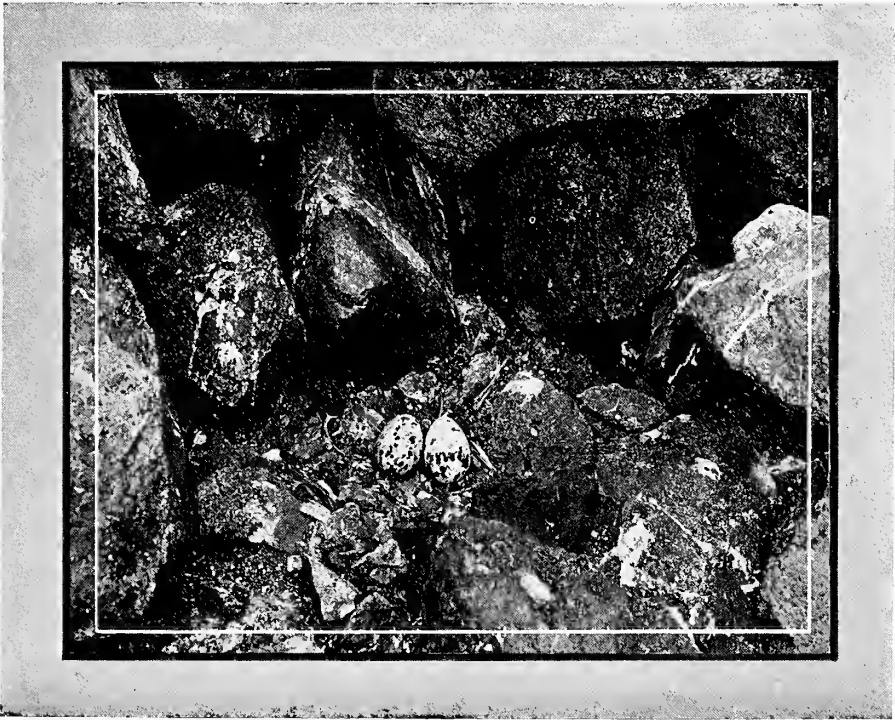


Fig. 53. NEST AND EGGS OF PIGEON GUILLEMOT

belonging to his recently elaborated form from the northern interior. Its occurrence so far west of its normal range is certainly of interest.

26. **Carpodacus mexicanus frontalis**. House Finch. Encouraged by the shelter of the cypress grove and Mr. Rosendale's tiny garden, a small colony of these finches have maintained themselves for some years past. Several broods were being successfully reared at the time of our visit, although the busy households of the cypress grove were visibly embarrassed over the presence of so much unexpected "company" from the East and South.

27. **Passer domesticus**. English Sparrow. More unwelcome than harpies at the feast of Ulysses, these wretched interlopers have invaded this sanctuary also. Small companies of them from San Francisco visit the islands yearly and return

shortly, but several seen at this season evidently intend residence. One leering male in the cypress grove I pasted for luck.

28. *Zonotrichia coronata*. Golden-crowned Sparrow. A handsome male was sighted near the landing on the morning of June 2nd.

29. *Spizella passerina arizonæ* (?) Western (?) Chipping Sparrow. A member of this June band seen in the Monterey Cypress grove—again on the 2nd. It might possibly have been an Easterner.

30. *Passerella iliaca townsendi*. Townsend Fox Sparrow. A number of Fox Sparrows seen from May 31st on were all apparently of the exact form of the one taken, which has been kindly identified by Mr. Grinnell. The "Committee" allows *townsendi* to venture only as far south as Humboldt County in winter, so these rascals from the Farallones were playing a bold hand.

31. *Passerina amœna*. Lazuli Bunting. A handsome male was seen by Mr. Rowley on the first of June, and again by myself on the day following.

32. *Piranga ludoviciana*. Western Tanager. An adult female, driven by necessity, fed over the stony pastures which were the rightful heritage of Cassin Auklets and Rock Wrens—June 1st.

33. *Tachycineta thalassina lepida*. Northern Violet-green Swallow. A solitary male hawked bravely about the inhabited portion of the island all day June 1st, and made an early, and a chilly, bunk on the telephone wire that night.

34. *Bombycilla cedrorum*. Cedar Waxwing. A single bird well seen.

35. *Dendroica æstiva rubiginosa* (?). Alaska (?) Yellow Warbler. A solitary specimen, a female, was several times sighted in the cypress grove, beginning May 29th. The sub-specific name assigned is a mere guess based on the bird's tardy appearance.

36. *Dendroica magnolia*. Magnolia Warbler. These, the daintiest as well as the most conspicuous of the eastern wanderers, were several times seen on the 29th of May, and a handsome male was secured on that date. Another male, bewildered and subdued by the strangeness of his surroundings, was encountered on the steep trail leading out of the Raven cave on the West End, and here, where his only companions were shag-flies and sea fowl, he endeavored to maintain himself for several days. A female was taken from the cypress grove on June 2nd.

37. *Dendroica virens*. Black-throated Green Warbler. A female was secured at close range from the ground west of Keeper Rosendale's house. Unfortunately the specimen is badly shattered, but the remains are in the Academy collection to attest this new record for the Pacific Coast. [Previously reported in the September CONDOR.]

38. *Dendroica townsendi*. Townsend Warbler. A male well seen in the Monterey cypress grove June 1st.

39. *Seiurus aurocapillus*. Oven-bird. The presence of this species, not previously reported west of the Rockies [save in the September CONDOR] gives character to the little bird-wave whose last beat broke on this occidental strand, and serves to mark its members for suspicion as wanderers rather than misdirected Alaskan pilgrims. This bird was caught in a vacant room of the assistant keeper's house, a male in high plumage and perfectly preserved. Another was seen a few minutes later outside the house, and it haunted the neighborhood during the remainder of our stay.

40. *Wilsonia pusilla chryseola*. Golden Pileolated Warbler. Seen on the 21st of May.

41. *Setophaga ruticilla*. Redstart. A second year male was closely observed in the cypress grove on the evening of June 1st.

42. *Salpinctes obsoletus obsoletus*. Rock Wren. The presiding genius of the Farallones, fearless, inquisitive, thrifty, and always happy. There is not a secret of the island which the Rock Wren does not know, for she pokes and pries into every crevice, examines every movable fragment of rock, stick, or bone, with a view to appropriation, scrutinizes every form of insect life with a view to assimilation, bugles from every rock-crest, greets the descending light-keeper in the cool gray of the morning, chirrups at "Snoozer", the island mascot, as she passes in her go-cart, titters at the Cassin Auklet brooding in her gloomy cell, mocks at the dignified "sea parrot", and stirs things up generally.

At the time of our visit the first broods of young were shifting for themselves, and the adult population was busy with second nesting. Five occupied nests were found, besides several promising "empties", without half trying. Of these, two contained pure white eggs, five and six respectively. The set of five was normal in



Fig. 54. WAIFS OF THE SEA

PHALAROPES, RED AND NORTHERN, FEEDING ON SOUTH SIDE OF SOUTHEAST FARALLON

size and shape; but the eggs of the larger set were much undersized, and absurdly shaped, being chopped off, squared, or flattened, like plaster pellets done by hand. One egg, by way of exception to these exceptions, was elongated, instead of shortened—evidently amateur work.

All the Rock Wrens wore their old clothes. Either their seclusion has made them indifferent to the prevailing fashions, or else they had worn out their wedding duds earlier in the season. The "splitters" have had their jealous eyes on these Farallon birds, but so far the wily Wrens have managed to keep within the bounds of Salpinctean propriety—a wide enough range, to be sure.

43. *Hylocichla ustulata ustulata*. Russet-backed Thrush. Several birds arrived on the morning of May 29th, and they skulked about the rock-slides or central elevations during the remainder of our stay. One was taken from the cypress grove.

SOME ROBINS' AND MOURNING DOVES' NESTS IN THE LOWER YAKIMA VALLEY, WASHINGTON

By CLARENCE HAMILTON KENNEDY

WITH TWO ILLUSTRATIONS BY THE AUTHOR

WHEN I first came into the Yakima Valley, I was pleased to be greeted by an old friend, the robin (*Planesticus migratorius propinquus*), slightly paler than his eastern relative and with the same cheerful note and mien; but I was surprised to see pair a complacently building a nest on a beam in a cow

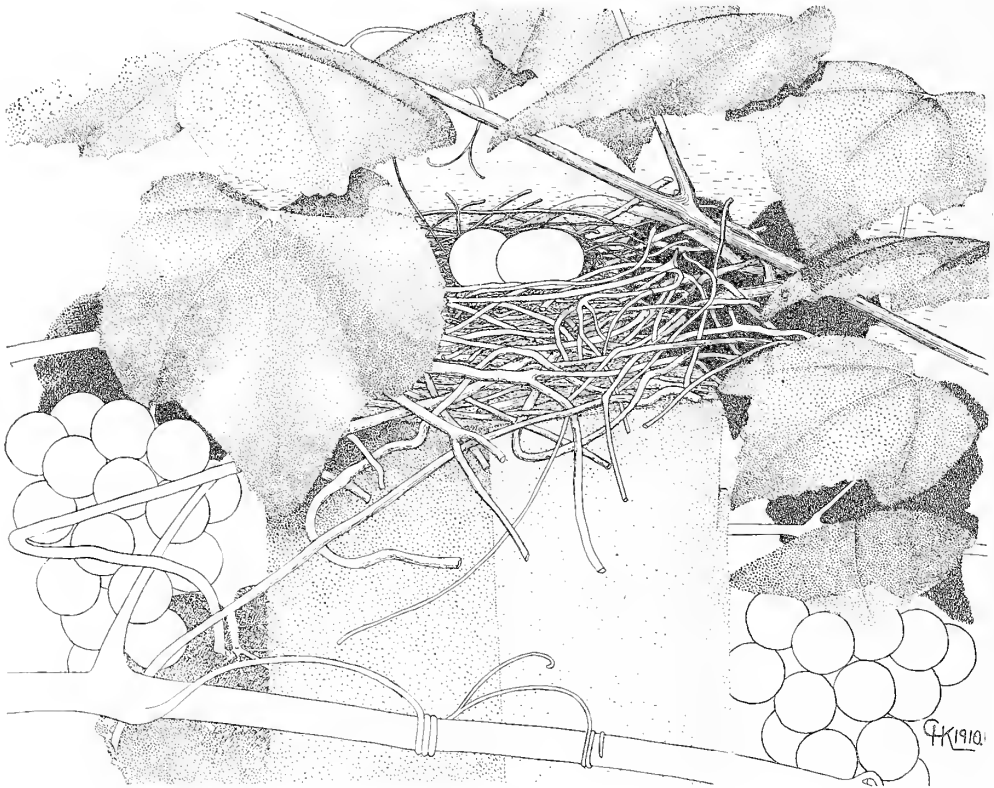


Fig. 55. A MOURNING DOVE'S NEST ON A POST

shed. However, on considering further I ceased to wonder. The Lower Yakima Valley, lying as it does in the Upper Sonoran Zone, is a sage-brush desert except along the streams, where are thickets of willows and cottonwoods, and in its more level portions, where are now many square miles of irrigated fields and orchards.

Because of the past scarcity of timber, the robins and also Mourning Doves (*Zenaidura macroura carolinensis*) appear to have lost to some extent their desire and ability to build in trees. Now that large areas of the valley are covered with orchards and that shade trees are numerous, they yet occasionally revert to their former habit of building in places other than trees. It is possible, though, that as irrigation is recent here, the robins and doves have spread out from their formerly more restricted habitat about the water holes and streams, into the sur-

rounding irrigated portions of the valley ahead of the development of a sufficient number of trees large enough to be suitable for nests.

The robin's nest mentioned above was begun on May 2, 1910, and was constructed of alfalfa and weed stems plastered together with mud and lined with rootlets after the usual robin style, but it was placed on a six inch beam close under the roof of an open cow-shed. The nest was about six feet above the ground. On May 15 it was nosed down by an inquisitive horse, breaking the three eggs which it contained. A nest was built shortly afterward, possibly by this same pair, in a cork elm tree on the lawn. This nest was built in a heavy fork about twelve feet above the ground.

These robins perhaps lacked a strong tree nesting instinct, because they con-



Fig. 56. A MOURNING DOVES' NEST ON THE GROUND

structed a loosely attached nest. Sufficient mud and other material had not been put in the base of the nest to wedge it solidly in the tree fork. This nest, with the four eggs which it contained, was destroyed by being blown out of the tree during a moderate gale on June 9, 1910.

During this same season of 1910 a pair of robins built a nest in the fork of a cherry tree about four feet above the ground. This pair was successful in rearing its young. During the present season, 1911, a pair of robins built in a honey-suckle vine on a porch within five feet of a door, through which people passed frequently. The nest was well built and of the usual type. There were three eggs in the clutch, which were hatched and the young successfully reared.

Mourning Doves do build on low horizontal limbs and in broad forks as is their

custom in the eastern states, for just recently, August 19, 1911, I observed on the Herke ranch in Parker Bottom a dove's nest on a horizontal limb of a willow and another, from which the young had just flown, on a horizontal apple limb. But as is the case with the robins they build in unusual places as well. The ordinary place to find doves' nests on this ranch is on the flat top of a vineyard post, where the nest is nicely shaded and screened from view by the grape leaves.

Two such nests were found in 1910, one of which is shown in the accompanying illustration (fig. 55), and two have been found this season, 1911. In all four cases the nests were well built for doves' nests, and the young were reared.

The second illustration (fig. 56) shows a dove's nest on the ground. This nest was at the edge of an alfalfa field just above the perpendicular side of a narrow ravine, the parent doves alighting and leaving from the brink of the bank. Sage brush rubbish had been scraped to this side of the field in clearing it, and in this half decomposed trash the doves had made for a nest merely a slight depression, apparently having brought nothing in the way of material to the nesting site. This nest was discovered on June 15, 1910, when the young were apparently but two or three days old. They left the nest on June 23.

It seems hardly probable that these birds, particularly the robins, which differ in other characters from their eastern relatives, should ever, even with the changed environment of irrigation, become as rigidly tree nesting as their eastern relatives.

However, it will be interesting to observe how these desert robins and doves will adapt their nesting habits to the coming change of environment.

NESTING NOTES ON THE DUCKS OF THE BARR LAKE REGION, COLORADO

By ROBERT B. ROCKWELL

PART II

WITH TEN PHOTOS

PINTAIL (*Dafila acuta*)

THE effect of irrigation and land cultivation upon the distribution of bird life, was clearly illustrated by our field work among the Pintails. Cooke's "Birds of Colorado" published in 1897 classified the Pintail as a "rare summer resident", with the qualifying statement that it usually bred from the northern states northward. This statement was no doubt largely correct, when it was published, but ten years' time, with the accompanying development of large reservoir and canal systems, and the cultivating of thousands of acres of fertile land, has wrought a decided change in this condition. Upon the beginning of our work* along the Barr Lakes in 1906, we found the Pintail very much in evidence throughout the spring and summer, and their nests were found in greater numbers than those of any other species of duck except the Blue-winged Teal.

It was a difficult matter to reconcile ourselves to the fact that the extremely shy, wild and racy birds that eluded our carefully placed and concealed blinds, and

* The notes upon which this paper is based were taken in company with Mr. L. J. Hersey.



Fig. 57. NEST OF PINTAIL WITHIN 18 FEET OF MAIN LINE OF BURLINGTON ROUTE



Fig. 58. A CLOSER VIEW OF THE PINTAIL'S NEST CLOSE TO RAILROAD TRACKS

kept just out of gunshot with an accuracy that was almost uncanny during the spring shooting season, could, in a few short weeks, be converted into the comparatively tame and unsuspicious birds that the nesting female Pintails proved to be. Yet the sleek, well dressed male with his conspicuous white waistcoat and brown head was at all times wary and difficult to approach, and very few times did we approach to within gunshot of him, although his solicitude for his mate and the nest was quite apparent.

We found nests of the Pintail in widely diversified locations but there was a peculiar similarity noticeable in all of them which was very different from our experience with the teal.

The first nest, found May 11, 1907, was probably the most unusually located nest of the Pintail on record.



Fig. 59. PINTAIL'S NEST ON HIGH PRAIRIE ANEARLY MILE FROM NEAREST WATER

It was just a trifle less than eighteen feet from the rails of the main line of the Burlington Route, over which a dozen or more heavy trains thundered every day, and well within the railroad right-of-way where section hands and pedestrians passed back and forth continually. The mother bird had found a cavity in the ground, about eight inches in diameter and eight inches deep, and had lined it with grass; and the two fresh eggs which it contained on this date were deposited without any downy lining whatever. The female flushed as we passed along the track about twenty feet distant, thus attracting our attention. A week later (on the eighteenth) the nest was fairly well lined with down and contained nine eggs, one egg having apparently been deposited each day. On May 24 the nest contained eleven eggs and the parent was

much tamer than on the two preceding visits, allowing us to approach to within fifteen feet of her, and alighting within twenty yards of us upon being flushed.

Another peculiar nest was found May 30, 1908, containing eleven eggs which hatched during the first week in June. This nest was a depression in a perfectly bare sandy flat without a particle of concealment of any kind. The cavity was located in the most exposed position within hundreds of yards, and was fairly well lined with weed-stems, grass, etc., and well rimmed with down. The brooding female was very conspicuous against the back-ground of bare sand, and could be readily seen from a distance of fifty feet or more. This bird was rather wild and flushed while we were yet some distance from the nest.



Fig. 60. BULL-SNAKE ROBBING PINTAIL'S NEST



Fig. 61. NESTING SITE AND NEST OF REDHEAD

Several nests were found far back on the dry prairie and high above the high-water mark, one being almost a mile from the lake. These nests were usually well concealed in the weeds, and were warmly lined with down of a somewhat darker shade than that found in the teals' nests. The birds were close sitters, often allowing us almost to step upon them before taking wing. The generous lining of down which was found in nearly all the nests was almost invariably used to cover the eggs during the absence of the parent, and many nests that had little or no concealment were difficult to locate after having been cunningly concealed by the mother duck, even though we knew almost the exact location. The bulky mass of down was pushed outward and upward when the bird was on the nest until it came well up about her body, but this very thing made the nests much more conspicuous when the birds were flushed unexpectedly, without sufficient time to



Fig. 62. MIXED NEST CONTAINING FIVE EGGS OF RUDDY AND FIVE OF REDHEAD

cover the eggs. One typical nest was found May 31, 1908 deeply sunk in a dense growth of very tall, rank grass on a small island in the lake, which would not have been discovered but for this fact.

On June 8, 1907 a nest was found under a spreading bunch of alfalfa on a small ridge in a low marshy meadow. On June 22, it contained nine eggs. The brooding female was unusually tame, and repeated attempts were made to photograph her, several of which were nearly successful. June 29 the female was still incubating but the nest contained only five eggs. The next day we found it occupied by a bull snake three feet nine inches in length, which had just swallowed an egg, only two of which now remained in the nest. It took the snake some time to force the unbroken egg (which was somewhat larger than its own body) down its throat about three inches, and it was regurgitated instantly upon our touching the

snake with a stick. Upon dissecting it we found no signs whatever of the other eggs, a fact which raised the question as to whether the two which had disappeared since the preceding day had been entirely digested (shell and all) within that time, or whether more than one snake was pilfering this particular nest. A fortunate exposure caught the egg just as it was being disgorged from the snake's mouth.

Eight to eleven eggs apparently constitute full sets, and ten was the average number found, but one nest was found containing five heavily incubated eggs, which hatched July 6, 1908. The earliest nest found during the three seasons was May 11; the first egg in this set was probably laid May 9. The average date for complete sets was the last week in May, and many of the eggs hatched during the first week in June.

Broods of young birds were kept well concealed by the parents until able to



Fig. 63. NESTING SITE OF RUDDY AND CANVASBACK. THIS MUSKRAT HOUSE CONTAINED AT THE SAME TIME TWO NESTS OF THE RUDDY AND ONE OF THE CANVASBACK

care for themselves. We saw but two or three broods, but in each case the mother was very bold, using every possible subterfuge to lead us away from her babies.

REDHEAD (*Marila americana*)

Cooke, in the second supplement to "Birds of Colorado," published in 1900, states that "facts are accumulating which make it probable that this species will in the near future be accounted among the breeding birds of Colorado," and this prediction was fully verified by our discovery of several nests during 1906, 1907 and 1908. Five nests were found which we could positively attribute to the Redhead, and a few others which in all probability belonged to this species, but which we were unable to identify beyond doubt. Further than this enough pairs of Redheads as well as single males in full breeding plumage were seen during May, June and July of each of these years to satisfy us that the birds were breeding along

the Barr chain of lakes in goodly numbers, and that the few nests examined by us were but a part of the total number.

The Redheads' nests, like those of the teal, exhibited a wide variation in structure and location. The first two nests were found June 10, 1906. These, containing five fresh eggs and nine incubated eggs, respectively, were within two feet of each other, in burrows in the top of a large musk-rat house at the edge of a small lake, in a sparse growth of cat-tails. The birds had burrowed in about eighteen inches, lined the cavity with down, and deposited the eggs at the end of the cavity. A careful examination of all the musk-rat houses seen (and they were so conspicuous that in all probability none was overlooked) during the balance of 1906 and the full nesting seasons of 1907 and 1908, failed to reveal any other similarly located nests of this species.



Fig. 64. NEST AND EGGS OF CANVASBACK IN BURROW IN SIDE OF MUSKRAT HOUSE

On May 31, 1907, we found a beautiful set of eleven fresh eggs in a large, bulky nest somewhat resembling an overgrown nest of the coot, but much less compact and not so neatly cupped or lined as the average coot's nest. There was little or no downy lining in the nest which was built in an average growth of cat-tails over about eighteen inches of water, and some twenty yards from the open water of the lake. There was no apparent attempt at concealment, and it was very conspicuous owing to its large size. The female flushed wildly, with a good deal of noise, when we were fully forty yards from the nest thus attracting our attention to it. Eight of these eggs hatched on or about June 20, the remaining three being addled.

The finest nest of this species which came to our attention was found June 15, 1907, in a dense cat-tail swamp between two small rush-encircled lakes. It was a beautifully built structure of dead cat-tail blades, mostly broken into small pieces, well built up above the surface of the water (which at this spot was only a few inches deep), deeply cupped, plentifully lined with down, and well concealed in the dense cat-tail growth. This set hatched on or about June 30. A photo of this nest appeared in the July, 1909, CONDOR.

Within about fifty yards of the nest found May 31, on June 8 we found one built in the midst of a solitary clump of cat-tails, containing two eggs of the Redhead and four of the Ruddy Duck. This was made entirely of dead cat-tails, and built in such a manner that the cat-tail clump entirely surrounded and covered it,



Fig. 65. NEST AND EGGS OF RUDDY IN BURROW IN SIDE OF MUSKRAT HOUSE

affording good concealment. A week later this nest contained two Redhead's eggs and six eggs of the Ruddy, and on June 22, it contained five eggs of each. Whether this nest belonged to a brooding Redhead or a Ruddy the most careful stalking did not reveal, as the bird invariably skulked off through the dense cover before we were able to identify it.

The peculiar manner in which eggs of more than one species were deposited in the same nest was a feature of special interest to us, and we tried persistently to unravel the mystery; but although we tried many different methods, we were unable except in one instance, to flush the parent bird from any of the nests containing mixed sets. In fact we did not flush any Ruddys or Redheads from nests except in the one case mentioned above.

CANVASBACK (*Marila valisineria*)

Probably the most important feature of our field work at Barr was that of establishing beyond question, the Canvasback, as a Colorado breeder. Although we made a special effort throughout the three seasons to locate nests of this species, one was all that we discovered, and judging from the few ducks seen, as compared with the number of individuals of the other species, we were no doubt very fortunate in finding the one nest.

On May 31, 1907 we found a fine set of ten Ruddy's eggs in an excavation in the side of a large musk-rat house. Upon returning to this nest on June 8, we found another and newer nest in the same musk-rat house containing eight fresh eggs of the Canvasback. This was also an excavation in the side of the house, much deeper than that of the Ruddy (the eggs being fully eight inches from the



Fig. 66. NEST AND EGGS OF RUDDY IN EXPOSED POSITION ON TOP OF MUSKRAT HOUSE

entrance), and higher above the water line. The cavity was fairly well lined with white down, quite a quantity of which was also scattered about the entrance of the burrow. A week later (June 15) the full complement of fourteen eggs had been deposited, and covered with a thick layer of down. The female was surprised not far from the nest and afforded us a splendid opportunity for identification. These eggs hatched on or about July 6.

RUDDY DUCK (*Erismatura jamaicensis*)

Judging from the numbers of Ruddy Ducks seen throughout the three seasons on all the smaller marshy lakes, we should have found them nesting in considerable numbers, but three nests and a mixed set was the best that we could do.

The first, which has been mentioned above in connection with that of the Canvasback, was a mere burrow in the side of the musk-rat house, without any downy lining whatever, and only a few inches above the water level. On May 31 it contained ten eggs, on June 8, eleven, two of which were Canvasback's or Red-head's; and on June 30 all but two Ruddy's and one other egg had hatched, although one duckling had died while hatching.

Meanwhile on June 8, the Canvasback's nest was found on the opposite side of the musk-rat house and about four feet from it; and a new Ruddy's nest containing three fresh eggs was found on top of the house, and about midway between the other two nests and somewhat higher up. This was a mere unlined depression in the litter composing the house, entirely without concealment of any kind, and the great snowy white eggs could be seen from a distance of many yards. On June 22 the nest contained eight eggs, and on June 30 the set had not yet hatched.

The third nest, found June 15, 1907, hardly deserved the dignity of the term. It was merely a depression formed by trampling a tuft of tender marsh grass down to form a flimsy platform just at water level in a dense cat-tail swamp between two small lakes. When found it was over about two inches of water, and the under sides of the eleven fresh eggs were wet. A week later the water in the swamp had risen slightly and the nest was deserted. This was about ten yards from the nest containing thirteen Redhead's eggs mentioned above, and three of the eleven eggs it contained were indistinguishable from eggs in the Redhead's nest.

In all our visits to these three nests we did not see the birds leave a single time, although they sometimes swam about in front of us, some distance out on the lake. The apparent indifference of the brooding Redheads, Ruddys and Canvasbacks was in marked contrast to the devotion of the Teal and Pintails to their nests; and is very difficult to understand when the characteristic timidity of the last named species during the migration period is taken into consideration.

THE RELATION OF BIRDS TO AN INSECT OUTBREAK IN NORTHERN CALIFORNIA DURING THE SPRING AND SUMMER OF 1911*

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WITH FOUR PHOTOS BY THE AUTHOR

AS THE study of the economic relation of birds becomes more and more important, any information as to their use as checks in an outbreak of injurious insects furnishes data of pertinent value. If it can be proved that birds flock to places where insects are abundant or even that the resident birds feed largely on those at any time most obtainable, their service as checks on outbreaks of injurious insects will be established.

Professor S. A. Forbes in 1883 made a study of the relation of birds to an outbreak of cankerworms in an apple orchard in Illinois. The orchard was visited for two successive seasons and a number of the different species of birds present

* This paper is a report of work done in connection with the investigation into the food habits of California birds in their relation to agriculture. This investigation is being carried on by the California State Board of Fish and Game Commissioners, and the present report is published with their permission.

were collected. It was found that "birds of the most varied character and habits, migrant and resident, of all sizes from the tiny wren to the blue jay, birds of the forest, garden, and meadow, those of arboreal and those of terrestrial habits, were certainly either attracted or detained here by the bountiful supply of insect food and were feeding freely upon the species most abundant. That thirty-five percent of the food of the birds congregated here should have consisted of a single species of insect is a fact so extraordinary that its meaning cannot be mistaken." Professor Forbes also found that the same percentage of other caterpillars had been eaten by the birds in the orchard as had been eaten by birds taken in other localities and that the cankerworm ratios had apparently been added to those of other caterpillars.



Fig. 67. DEFOLIATED SNOW BRUSH (*Ceanothus cordulatus*), THE RESULT OF THE WORK OF THE LARVAE OF *Eugonia californica*. PHOTOGRAPH TAKEN NEAR SISSON, SISKIYOU COUNTY, CALIFORNIA, AUGUST 24, 1911

The most prolonged series of studies of the relation of birds to insect outbreaks was that by Professor Samuel Aughey, who for thirteen years studied the extent to which birds fed on the Rocky Mountain locust or grasshopper during the periodic outbreaks of that insect. His tabulated results show that birds of every description from the pelican to the tiny hummingbird fed to a very large extent on the grasshoppers.

The relation of birds to the army worm, which is one of the best known of the periodical pests, has received some investigation at the hands of the economic ornithologist. Professor B. H. Warren, the state zoologist of Pennsylvania, mak-

ing a careful investigation, found that a large proportion of the common birds fed upon the pests.

The remarkable plague of caterpillars followed by a pest of butterflies that has existed the past spring and summer (1911) in the northern counties of California, especially in Siskiyou County, has furnished an interesting example of an insect outbreak. The economic importance of the outbreak may not have been as great as in the case of some others, but the numbers of individuals and the extent of the plague mark it as one of the most notable in the history of the state. Reports as to the great numbers of the worms are meagre, but the defoliated brush throughout Siskiyou County, where the plague was most severe, bears mute testimony to their work. When great swarms of butterflies made their appearance, the aspect of the outbreak became so extraordinary that the newspapers published numerous, often exaggerated accounts, of the phenomenon.

From all accounts, the vicinity of Mount Shasta was most affected, both the worm and the butterfly being abundant at Weed, Igerna, and Sisson, three towns on the western base of the mountain. The worms were reported as being very abundant at Marble Mountain in western Siskiyou County and at Weaverville, Trinity County. Although no butterflies in any numbers were noticed at Redding, Shasta County, they were reported as very abundant in the mountains thirty-five miles east of that place.

The following abstract is made from a letter by Honorable J. B. Curtin, dated

September 11, describing a similar outbreak, of far less extent, in the Sierras. "Aspen Valley is a part of my cattle range and is at an elevation of six thousand three hundred and fifty feet. For a distance of about a mile each way, that would be east and west, the caterpillars have been traveling, going north. As far as I can learn, they are now in the central part of the county (Tuolumne) and have traveled perhaps thirty miles north from the south fork of the Tuolumne River. They fed only on snow brush, stripping each bush of its leaves."

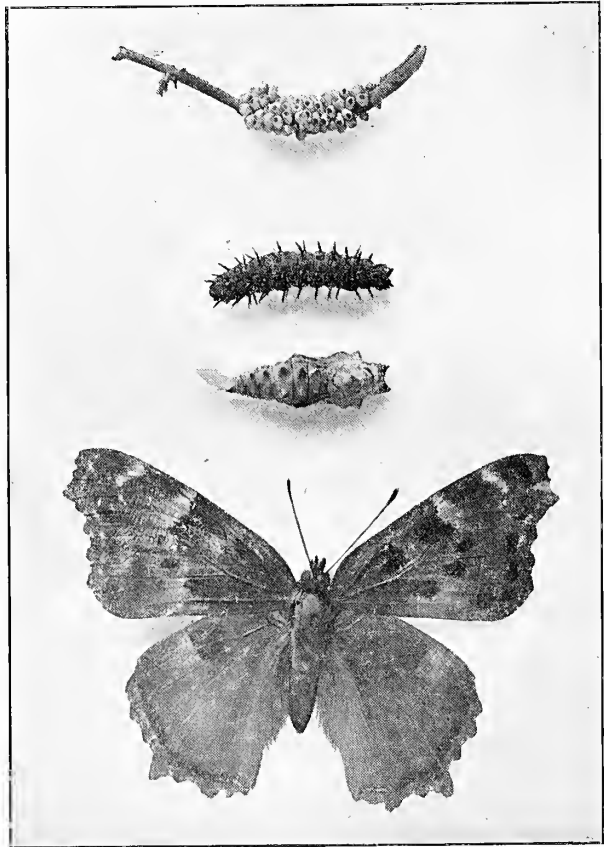


Fig. 68. THE LIFE HISTORY OF *Eugonia californica*. THE EGGS SHOWN ARE NOT THOSE OF *Eugonia californica* BUT THOSE OF A MOTH OF A TENT CATERPILLAR WHICH ALSO LIVES ON SNOW BRUSH. THE EGGS OF *Eugonia* ARE SIMILAR TO THESE AND ARE CLUSTERED ON A SMALL BRANCH IN MUCH THE SAME MANNER. NOTE THE STIFF HAIRS ON THE LARVA; THE SHAPE AND GENERAL CHARACTER OF THE PUPA, AND THE SIZE AND APPEARANCE OF THE ADULT

Although no damage was done to crops, the outbreak furnished a splendid opportunity to study the relations of the birds in checking such a plague of insects. As the Fish and Game Commission is carrying on at the present time an investigation into the food habits of California birds in their relation to agriculture, evidence as to the part played by birds in this particular outbreak seemed to be of importance. Consequently an investigation was instituted under the auspices of the Commission.

The writer spent a week during the latter part of August at Sisson, Siskiyou County, collecting data by field observation and by the collection of birds for analysis of stomach contents. A total of sixty-one specimens, representing twenty-one species of birds, are at hand for stomach examination. A list of the species identified during the stay totals forty-five. It is to be regretted that a larger number of specimens representing a larger number of species is not at hand for examination, for the greater number would, without doubt, have not only augmented the number of species found to feed on the insects, but would also have established points now in doubt.

To insure a complete understanding of the outbreak, a brief account of the life history and habits of the insect in question, follows.

As far as can be ascertained, the butterfly which has been so abundant in the north this year, has no common name. Among scientists it is known as *Eugonia californica*. It is closely allied to the members of the genus *Vanessa*, the tortoise-shell butterflies, species of which are known throughout the United States. *Euvanessa cardui*, a common butterfly of southern California appeared a few years ago in a swarm almost equal in extent to the plague of *Eugonia californica*.

There are four stages in the life of every butterfly and moth, egg, larva, pupa, and imago. From the egg hatches a caterpillar or larva. It is only in the larva stage that a butterfly or moth becomes of economic importance: nearly all of their larvae feed on vegetation. The depredations of the army worm, which is simply the larval form of a moth, are known only too well. The larva lives for some time on vegetation, then either hangs itself head down and is transformed into a chrysalis, spins a cocoon, or buries itself in the ground. This is called the pupa stage. After a week or more in this state there emerges the imago or adult form, a butterfly or moth. The butterfly or moth usually lives for several months or even for a year, then lays its eggs and the cycle is begun over again.

Eugonia californica lays its eggs on a common shrub of the mountains known as thorn brush, deer brush, buck thorn, buck brush, or snow brush (*Ceanothus cordulatus* and *Ceanothus velutinus*). In the early spring the larvae hatch from the eggs, crawl out on the foliage and begin to feed on the leaves. At the present time there are large areas in Siskiyou County where this brush is entirely defoliated as a result of the work of these larvae (see fig.67). By the middle of the summer, they have grown to be an inch or more in length and are ready to pupate. They then hang themselves head down on the under side of the branches and become pupae. In the defoliated areas, great numbers of pupae were found hanging from the under sides of the branches. Most of them were mere shells, as the butterfly had hatched, but large numbers were also found which had apparently been destroyed by birds and by parasites (see fig.69). A large hole picked into the thoracic portion of the pupae evidently showed the work of birds, whereas small round holes for the entrance and departure of some insect, gave evidence of the work of a parasite. Inside of a few weeks the butterfly or imago form emerges. Its food consists of what moisture and sap it can suck up on vegetation. The butterflies may possibly

mate and lay their eggs in the fall, but more often they live through the winter and lay their eggs in the early spring (see fig. 68).

In 1902 this same species of butterfly was abundant in the north. Since that time it has not been seen in any great numbers until this year. In the memory of the oldest inhabitants of Siskiyou County, the numbers of butterflies this year far exceed those of any previous year. The newspaper accounts were often exaggerated, and yet few people who did not see the swarms which filled the air, can have any realization of the great numbers. In order to get some idea of the numbers, counts were made. In damp places or along the banks of streams, where the butterflies had gathered to drink, as many as 150 individuals were counted in one square foot. Often the ground would be blackened by them for many square yards (see fig. 70).

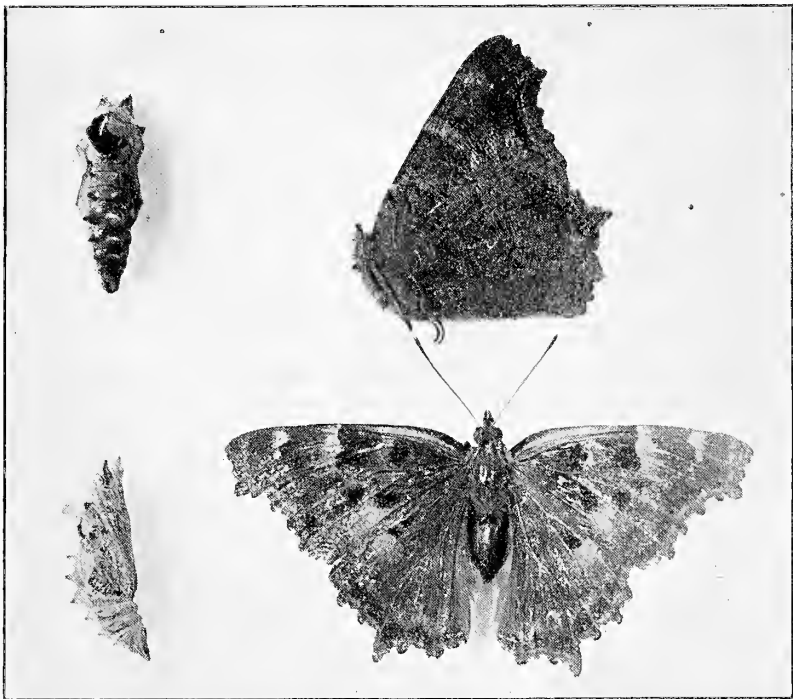


Fig. 69. PUPAE AND ADULTS OF *Eugonia californica*. IN ONE OF THE PUPAE, THE INSECT HAS BEEN DESTROYED BY SOME BIRD; IN THE OTHER BY SOME PARASITE. THE LATERAL VIEW OF AN ADULT SHOWS THE DARK UNDER SURFACE OF THE WING, AND THE DORSAL VIEW, THE COLOR PATTERN OF THE UPPER SURFACE.

In order to estimate the numbers flying, counts were made of the individuals passing between two fir trees about twenty feet high and standing about thirty feet apart. The counts for ten successive minutes between 4:40 and 4:50 P. M. on August 20, were as follows:

1st minute	.....105	6th minute.	.....100
2nd "	.....119	7th "	..... 96
3rd "	.....130	8th "	.....102
4th "	.....102	9th "	..... 83
5th "	.....134	10th "	.....112
		Average per minute.....	108

Imagine the same numbers passing across a line a number of miles long, or better, across the breadth of Siskiyou County, and for say eight hours a day for several days; the numbers become incredible.

The butterflies were all migrating southward. In the early morning none were to be seen, but by half past nine they were in full migration. During the night they rested among the leaves on the trees or shrubs, on the sides of buildings or in any other convenient place.

With the life cycle taking but a year, it at first seems hard to explain why the numbers should be so much greater one year than another. One factor governing the phenomenon is the presence or absence of fortunate conditions for hiberna-



Fig. 70. BUTTERFLIES GATHERED TO DRINK AT A DAMP PLACE IN THE ROAD. PHOTOGRAPH TAKEN AT SISSON, SISKIYOU COUNTY, CALIFORNIA, AUGUST 23, 1911.

tion of the butterfly. As the pupae are parasitized to a large extent, in the neighborhood of 35 percent, and doubtless the larvae are also parasitized, the abundance or scarcity of these parasites must govern the numbers to some extent. A third factor, and without doubt an important one, is the part played by birds in the destruction of larva, pupa, and imago. Many of the pupae, 15 percent or thereabouts, apparently showed the work of birds, and as will be shown birds have an important part to play in the destruction of the butterflies. To what extent birds feed on the larvae is not known. Probably not to as great a degree as on the pupa and imago forms, for the larvae are well protected by stiff hairs. The scarcity or

abundance of food for either the larva or adult also has its influence. It will be seen, therefore, that the numbers of individuals from year to year depend on many factors, and that it is impossible to pick out any one as *the* factor. Probably it was a coincidence of several factors that caused the species to be so abundant this year.

In the investigation two methods were used, observation in the field and examination of stomach contents. Circumstantial evidence that a bird fed on the insects was not considered sufficient, so that unless the bird was actually seen to eat a butterfly or unless remains of butterflies were found in the stomach, the bird was not incorporated in the list of species known to feed on the insect. Doubtless if more time could have been spent in the field and more stomachs collected, the number of species acting as checks would have been found much larger. It is to be regretted that the field investigation was not begun sooner so that the kinds of birds feeding on the larvae and pupae might have been determined. In the vicinity of Sisson, Siskiyou County, where, August 20 to 25, the investigation was carried on, the larvae had all pupated and hatched into butterflies.

The writer is indebted to Professors C. A. Kofoed and C. W. Woodworth for valuable suggestions in the preparation of this paper and to Mr. J. Grinnell of the Museum of Vertebrate Zoology for a critical reading of the manuscript.

Field observation can seldom be depended on to furnish information as to the kind of food taken by a bird. In this investigation, however, the insects concerned were so large that there was no difficulty in determining positively whether the birds were feeding on *Eugonia californica* or on some other insect. The species of birds plainly seen to eat these butterflies were the Brewer blackbird (*Euphagus cyanocephalus*), western kingbird (*Tyrannus verticalis*), and western meadowlark (*Sturnella neglecta*).

By far the most efficient destroyer of the butterflies was the Brewer blackbird, (*Euphagus cyanocephalus*). From early morning till evening on every day during my stay at Sisson, great numbers of Brewer blackbirds could be seen congregated along the damp places in the road or in the meadows where the butterflies gathered, busily engaged in catching these insects. It was only in the near vicinity of the town that these birds were seen, but large flocks, in many cases numbering over a hundred individuals, were scattered about the small valley. Three particular flocks were closely watched.

A flock of some twenty-five individuals could nearly always be found in the near vicinity of the depot. They spent most of their time catching butterflies along the track, or about the damp places in the street just north of the depot. Between 11 and 12 o'clock on August 20, several of these birds, feeding in the road, were seen to take an average of five butterflies each minute. The method of capture was often quite crude. The bird seldom flew after an insect but simply walked along and attempted to pick it up. When a butterfly flew away, the bird either ran after it or attempted to catch another one. Occasionally a bird succeeded in swallowing a butterfly whole, but more often the insect was held with the feet while the body was torn from the wings. In places the ground was strewn with the discarded wings. Several times a bird was seen to catch a butterfly only to have it escape a moment later badly injured. One blackbird, either having had its fill or being attracted by another one of the insects, was seen to crush a butterfly in its bill and then drop it. Doubtless, therefore, these birds killed more than they really consumed.

Another large flock made its headquarters just west of town. On different occasions this flock was seen feeding along the railroad track in a meadow. When

frightened they perched in some nearby fir trees or on the telegraph wires. The third flock could always be found in the near vicinity of some meadow-land south of Sisson. Close observation failed to show them feeding on anything but butterflies.

The stomach examination of the few Brewers taken at this time substantiated the fact that their food was made up almost entirely of the butterflies. The stomach of one bird taken very early in the morning, when examined, was found to contain five *Eugonia californica* and parts of several others. A few grains of oats and parts of beetles were found in the stomach of a bird taken in a meadow near a stubble field. Birds collected the latter part of June and July contained a large percentage of beetles but no larvae or adults of *Eugonia californica*. Considering the comparative numbers of individuals of the different species of birds found to feed on the butterfly, the Brewer blackbird took 95 percent of the butterflies eaten by birds, the meadowlark 2½ percent and the kingbird, blue jay and Say phoebe shared the rest.

Only four western kingbirds (*Tyrannus verticalis*) were seen. Two birds perched on the telegraph wires along a road, were watched for some time. One of them was seen to catch two butterflies in the air. On another occasion two kingbirds were seen in the same general location, probably the same birds. They continually flew out from the wire and caught some insect in the air. As the air was filled with butterflies, it seems probable that these birds were catching them. Two kingbirds seen perched on a fence in a barnyard appeared also to be feeding on butterflies. It is to be regretted that no specimens are at hand for stomach examination, as the supplementary evidence, thus obtainable, would have thrown light on the extent to which the kingbird acts as a check.

Meadowlarks (*Sturnella neglecta*) were so shy that except in one case, it was impossible to determine the kind of food taken. A lone meadowlark feeding with some Brewer blackbirds on the grass plot adjoining the station was seen to run after several butterflies and to catch one. In the examination of seven stomachs, only two showed the remains of butterflies. All of the birds whose stomachs were examined, were taken in meadows or cut fields of wild hay where other insect life was abundant. Beetles and grasshoppers formed the bulk of the food.

A Say phoebe (*Sayornis sayus*) collected August 30, was found to contain a large butterfly of another species and also a *Eugonia californica*, as well as some ants. Since 75 percent of the stomach contents was composed of butterflies of different kinds and since, according to Beal (1910), these insects form more than 10 percent of the food of this bird for the year, it would appear that this flycatcher, as well as the kingbird, can be ranked as one of the checks on *Eugonia californica*. Doubtless another large flycatcher, the ash-throated flycatcher (*Myiarchus cinerascens*), took its share of the butterflies, for it is known to feed to a considerable extent on butterflies and moths. No specimens of this species are available.

If the food of the smaller flycatchers can be judged from that of the western flycatcher (*Empidonax difficilis*) it is doubtful if they bore any relation to the outbreak. The stomachs of the two western flycatchers examined, contained numerous small flies and a few small bees and beetles. A small white moth was found in one of the stomachs. Moreover it seems strange that a bird of its size should take so large an insect as the butterfly under discussion. No specimens of the western wood pewee (*Myiochanes richardsoni*) are at hand. Its food habits are known to be much like those of the western flycatcher.

The red-winged blackbird (*Agelaius phoeniceus*, subspecies?) was very abund-

ant about Sisson. Flocks containing hundreds of individuals were often seen feeding on the meadow-land or on the stubble fields. They seemingly paid no attention to the hordes of butterflies but busied themselves searching for vegetable food. Stomach examination showed a considerable quantity of oats and other seeds, probably waste picked up in the stubble fields. A very small percentage of the food was made up of small ground beetles and grasshoppers.

Most of the Bullock orioles (*Icterus bullocki*) seen were feeding on huckleberries or other wild fruit. Eighty-two percent of the food in the stomachs examined was made up of wild fruit, mostly huckleberries and elderberries. The only animal food found consisted of wild bees.

The commonest sparrows were English sparrows (*Passer domesticus*) in town, Brewer sparrows (*Spizella breweri*) in the weed patches, and thick-billed fox sparrows (*Passerella iliaca megarhyncha*) in the brush. The English sparrow appeared to be feeding entirely on weed seeds as did also the Brewer sparrows. The stomachs of three Brewer sparrows were filled with weed seed and a few small beetles. The fox sparrow appeared to be largely a vegetarian also, for 96 percent of the food in two stomachs was composed of weed seeds. Parts of two ground beetles formed the only animal food. The stomach of a mountain song sparrow (*Melospiza melodia montana*) contained two cutworms, one unidentified larva, one beetle larva, and one small bee.

A bird of the brush, the green-tailed towhee (*Oreospiza chlorura*), was found to feed largely on small beetles and seeds, for the two stomachs examined were filled with these kinds of food only.

Only two species of woodpeckers were available for examination. As most of the members of this family feed very largely on larvae it seems probable that their use as checks would be most noticeable when the larvae were abundant. The one stomach of the woodpecker most likely to feed on the butterfly, the red-shafted flicker (*Colaptes cafer collaris*), failed to show any *Eugonia californica*. Two flickers, feeding on the ground, were watched for twenty minutes, but they paid no attention to the many butterflies. They walked along searching the ground carefully for some sort of food, in all probability ants. The stomachs of two white-headed woodpeckers (*Xenopicus albolarzatus*) were filled with vegetable matter, doubtfully identified as fungus, and a few beetles.

Blue-fronted jays (*Cyanocitta stelleri frontalis*) were often seen either climbing to the top of a fir or sailing from the tip top of one tall tree to a lower one. Only once was one seen feeding on the ground. Five *Eugonia californica* were found in one of the two stomachs examined. The other contained a number of large green larvae. It seems natural that a bird with the varied diet of the jay should turn to this particular form of insect food when it became available.

A western bluebird (*Sialia mexicana occidentalis*), perched on an old stump in a small grassy pasture, was watched for half an hour. It flew to the ground, caught a white moth, flew back to the stump and proceeded to tear it to pieces and eat it. During the next fifteen minutes it repeated the operation four more times, having within twenty minutes destroyed five moths. Butterflies were very abundant, but the bluebird appeared to prefer the smaller moths to the larger butterflies. Two stomachs were available for examination. One contained a number of small beetles and the other two grasshoppers.

Large flocks of western robins (*Planesticus migratorius propinquus*) could be found wherever wild fruit was abundant. Especially was this true where huckleberries were common. The flocks were made up largely of juveniles. An examination of thirteen stomachs gave evidence that their food at that particular

time of year is largely wild fruit. Over 99 percent of the food contained in the stomachs of six birds taken near the huckleberries, was made up of this fruit.

Cliff swallows (*Petrochelidon lunifrons*) were usually seen circling high in the air although on two occasions a number were seen perched on telegraph wires. These birds were carefully watched, but they did not seem to be feeding on the numerous butterflies about them. They certainly could have been seen to take butterflies if these had been chosen for food. A very few western barn swallows (*Hirundo erythrogastra*) were seen, but these too, seemed to be intent on catching some smaller insect. No stomachs are at hand for examination.

Mountain quail (*Oreortyx picta plumifera*) were very abundant in the brush. A flock was closely watched, but the birds appeared to be searching among the leaves under the brush for their food. As the mountain quail is largely a vegetarian, it probably bore no relation to the butterflies.

The stomachs of three mourning doves (*Zenaidura macroura carolinensis*) contained nothing but weed seeds.

One stomach of each of the following birds was also examined: belted kingfisher (*Ceryle alcyon*), western evening grosbeak (*Hesperiphona vespertina montana*), Cassin purple finch (*Carpodacus cassinii*), Sierra junco (*Junco hyemalis thurberi*), and western house wren (*Troglodytes aedon parkmani*). There was no evidence that these birds fed on the butterflies. Judging from its food habits, it seems probable that the wren would be one of the birds to feed on the pupae. The Calaveras warbler (*Vermivora rubicapilla gutturalis*), another common bird of the brush, probably ranks with the western house wren in this regard.

Chickens and ducks seemed to appreciate the unlimited supply of butterflies, for they were seen catching them from early morning till late in the evening. In the vicinity of Sisson, at least, the domestic birds, on account of their capacity and numbers, by destroying butterflies performed a service nearly as great as all the wild species put together.

The following table gives a summary of the contents of the stomachs of birds taken during August, and the number of stomachs of each species examined.

NAME OF SPECIES	Number of Stomachs	Percent of Animal Food	Percent of Vegetable Food	Percent of Butterflies
Mourning dove (<i>Zenaidura macroura carolinensis</i>)	3		100.0	
Belted kingfisher (<i>Ceryle alcyon</i>)	1	100.0		
White-headed woodpecker (<i>Xenopicus albolarvatus</i>)	2	11.5	88.5	
Red-shafted flicker (<i>Colaptes cafer collaris</i>)	1	19.0	81.0	
Say phoebe (<i>Sayornis sayus</i>)	1	100.0		25.0
Western flycatcher (<i>Empidonax difficilis</i>)	2	100.0		
Blue-fronted jay (<i>Cyanocitta stelleri frontalis</i>)	2	74.0	26.0	30.0
Red-winged blackbird (<i>Agelaius phoeniceus</i> , subsp.?)	13	6.7	93.3	
Western meadowlark (<i>Sturnella neglecta</i>)	5	85.4	14.6	15.2
Bullock oriole (<i>Icterus bullocki</i>)	4	17.5	82.5	
Brewer blackbird (<i>Euphagus cyanocephalus</i>)	3	83.3	16.7	61.0
Western evening grosbeak (<i>Hesperiphona vespertina montana</i>)	1	74.0	26.0	
Cassin purple finch (<i>Carpodacus cassinii</i>)	1		100.0	
Brewer sparrow (<i>Spizella breweri</i>)	3	47.7	52.3	
Sierra junco (<i>Junco hyemalis thurberi</i>)	1	100.0		
Mountain song sparrow (<i>Melospiza melodia montana</i>)	1	100.0		
Thick-billed fox " (<i>Passerella iliaca megarhyncha</i>)	2	4.0	96.0	
Green-tailed towhee (<i>Oreospiza chlorura</i>)	2	71.0	29.0	
Western house wren (<i>Troglodytes aedon parkmani</i>)	1	100.0		
Western robin (<i>Planesticus migratorius propinquus</i>)	10	13.7	87.3	
Western bluebird (<i>Sialia mexicana occidentalis</i>)	2	86.5	13.5	
Total number of stomachs	61			
Average percent of butterflies taken by four birds.....				32.8
Average percent of butterflies taken by all birds.....				6.2

Before taking up a discussion of the influence of birds on the checking of this particular outbreak of insects, it is necessary that there be given some idea as to the bird population of the territory affected. A list of the species recognized with certainty by the writer during his stay at Sisson, August 20 to 25, inclusive, 1911, follows.

1. Mountain quail. *Oreortyx picta plumifera*.
2. Mourning dove. *Zenaidura macroura carolinensis*.
3. Turkey vulture. *Calhates aura septentrionalis*.
4. Western red-tailed hawk. *Buteo borealis calurus*.
5. Sparrow hawk. *Falco sparverius*.
6. Belted kingfisher. *Ceryle alcyon*.
7. White-headed woodpecker. *Xenopicus albolarvalus*.
8. Lewis woodpecker. *Asyndesmus lewisi*.
9. Red-shafted flicker. *Colaptes cafer collaris*.
10. Pacific nighthawk. *Chordeiles virginianus hesperis*.
11. Hummingbird. Species?
12. Western kingbird. *Tyrannus verticalis*.
13. Say phoebe. *Sayornis sayus*.
14. Western flycatcher. *Empidonax difficilis*.
15. Blue-fronted jay. *Cyanocitta stelleri frontalis*.
16. Red-winged blackbird. *Agelaius phoeniceus*, subspecies?
17. Western meadowlark. *Sturnella neglecta*.
18. Bullock oriole. *Icterus bullocki*.
19. Brewer blackbird. *Euphagus cyanocephalus*.
20. Western evening grosbeak. *Hesperiphona vesperlina montana*.
21. Cassin purple finch. *Carpodacus cassinii*.
22. Green-backed goldfinch. *Astragalinus psaltria hesperophilus*.
23. English sparrow. *Passer domesticus*.
24. Western Savannah sparrow. *Passerculus sandwichensis alaudinus*.
25. Brewer sparrow. *Spizella breweri*.
26. Sierra junco. *Junco hyemalis thurberi*.
27. Mountain song sparrow. *Melospiza melodia montana*.
28. Thick-billed fox sparrow. *Passerella iliaca megarhyncha*.
29. Spurred towhee. *Pipilo maculatus megalonyx*.
30. Green-tailed towhee. *Oreospiza chlorura*.
31. Lazuli bunting. *Passerina amoena*.
32. Western tanager. *Piranga ludoviciana*.
33. Cliff swallow. *Petrochelidon lunifrons*.
34. Western barn swallow. *Hirundo erythrogastra*.
35. Violet-green swallow. *Tachycineta thalassina lepida*.
36. Western warbling vireo. *Vireosylva gilva swainsoni*.
37. Calaveras warbler. *Permivora rubricapilla gulluralis*.
38. California yellow warbler. *Dendroica aestiva brewsteri*.
39. Dipper or water-ouzel. *Cinclus mexicanus unicolor*.
40. Western house wren. *Troglodytes aedon parkmani*.
41. Red-breasted nuthatch. *Sitta canadensis*.
42. Mountain chickadee. *Parus gambeli*.
43. California bush-tit. *Psaltiriparus minimus californicus*.
44. Western robin. *Planesticus migratorius propinquus*.
45. Western bluebird. *Sialia mexicana occidentalis*.

Brewer blackbirds, English sparrows and cliff swallows were the commonest birds found about the streets of the town. In the meadows, red-winged blackbirds, Savannah sparrows and meadowlarks were the only birds seen in any numbers. The red-wings were usually in flocks of several hundred, mostly juveniles. Wherever wild fruit was abundant robins and orioles could be found. In the brush green-tailed towhees were the commonest birds, but Calaveras warblers were also abundant. Only a few spurred towhees were noted. Western house wrens were more often heard than seen. Along the railroad tracks where the brush had been

cleared away and the weeds allowed to grow, Brewer sparrows were exceedingly common.

During an early morning walk through brush and forest the following birds were seen: blue-fronted jay, Brewer sparrow, green-tailed towhee, western house wren, bush-tit, Calaveras warbler, western robin, red-shafted flicker, and Lewis woodpecker. Within the space of three-quarters of an hour, five different species of birds were seen to perch in a dead cedar on a small hill. The tree was first visited by a Bullock oriole, then by a small flock of western bluebirds, four other Bullock orioles, two cliff swallows, which perched on the topmost limb, several purple finches and an evening grosbeak.

In a little meadow west of Sisson, where grass and weeds grew in abundance, a large number of birds were seen. In the weeds green-backed goldfinches and Brewer sparrows were feeding in large flocks. Several flickers were feeding on the ground. A lazuli bunting flew into a fir tree where several Calaveras warblers were at work. A sparrow was heard in a nearby tree. Several robins flew from one tree to another. A western bluebird was perched on a stump.

With the plague-ridden territory inhabited by so large a number of species of birds and by so large a bird population, it may at first seem strange that only five species of birds were found to feed on *Eugonia californica*. The investigation showed that only the larger birds fed on the butterfly. Certainly most of the small birds are ill-adapted for catching insects as large as the butterfly in question. Their most intimate relation to the outbreak was doubtless when the insect was in the larval and pupal stage. If all the birds smaller than the Say phoebe be eliminated from the list as being unable to act as checks on the butterfly, we find that over twenty-two percent of the species of the larger birds fed upon the butterfly. If we eliminate those of the larger birds, which judging from their food habits would not feed upon the butterfly, we find that almost forty percent of the possible species did feed upon the insect.

A striking fact is that the birds acting as checks, with one exception, that of the Say phoebe, are birds about whose depredations there is considerable complaint by the farmers of the state. That the blackbird, meadowlark, jay, and kingbird all do a certain amount of harm is undeniable, but too often only one side of the question is emphasized.

Especial attention is called to the fact that even such a bird as the blackbird, which is often classed as the worst pest of the farmer, may become of value at times and places where it is least expected. The present paper shows that the same birds that are often classed as harmful may be very beneficial in the checking of an insect outbreak.

Even though the brush attacked by the larva of *Eugonia californica* is seldom killed by the defoliation, yet the plants must be weakened to some extent. If the economic value of the brush be measured by its use as forage for deer and sheep, it will be seen that some importance, at least, attaches to this particular insect outbreak in that the defoliation took place during the summer when it was most needed as forage. The economic importance or non-importance of the outbreak, however, in no way affects the value of the principle involved in the relation of the birds to the epidemic; namely, that birds prey upon the insect food most abundant and therefore become factors in the checking of an insect outbreak.

In the life history of such an insect as *Eugonia californica*, we find the maximum number of individuals soon after hatching begins in the spring. From this time on there is normally a rapid decrease in numbers. The decrease is due to, not only the action of birds, which are perhaps the most constant factor in the de-

struction of larva and pupa, but also to parasitism. After the butterfly is hatched there is usually but a slow decrease throughout the winter. From this it will be seen that the butterfly has a far greater chance to survive than the caterpillar or the pupa. With this in view, almost half of the adults of *Eugonia californica* can be counted on to survive until egg-laying time. A much smaller percent of larvae or pupae could be counted on to survive till this stage owing to the greater death-rate. Any destruction of the butterfly, therefore, is an attack on the insect at a critical period in its life history. Consequently the work of five species of birds at this critical point might be more important as a check on the increase of the insect than the work of many more species during the larval and pupal stages. It appears also that in this particular case birds are among the very few natural checks on the butterfly, whereas parasites as well as birds probably play an important part as checks on the insect in its larval and pupal stages.

If we consider the work of one Brewer blackbird, its value as a check becomes apparent. Suppose that one of these birds having fourteen hours a day in which to feed, takes an average of one butterfly a minute for eight hours out of the fourteen. Judging from observations made, this would not be extraordinary. By the end of the day it would have consumed 480 butterflies, by the end of the week, 3360, and by the end of a month, over 100,000. If, say, a third of the butterflies destroyed were females, probably a larger percent are females, the numbers of eggs so destroyed would number near 336,000. Such computations as this are of somewhat doubtful value for they often seem so exaggerated that in the mind of the reader, the real facts are discounted. Its use here is simply to give some idea of the extent to which a bird might act as a check and probably did act as a check in this instance.

One of the most striking things brought out in the investigation was the great difference in the food habits of the red-winged and the Brewer blackbirds. Whereas the Brewer was found to feed almost entirely on the pests, the red-wing apparently paid no attention to the extraordinary abundance of insect food.

The results of investigation show that a good percentage of the birds larger than the Say phoebe fed on the butterfly, *Eugonia californica*, and this was without doubt a factor in the reduction of the insects. A comparison of birds taken at Sisson before the butterflies became abundant with those taken at the time of the investigation proved the fact that the birds varied their food ratios and took advantage of the abundant supply of this particular insect food.

SUMMARY OF RESULTS

The investigation instituted by the State Fish and Game Commission into the relation of birds to an insect outbreak in northern California during the spring and summer of 1911, showed the following results:

1. The insect which became a pest was a butterfly, *Eugonia californica*, the larval form of which feeds upon snow brush or buck brush (*Ceanothus cordulatus*, *Ceanothus velutinus*).
2. The great number of caterpillars and butterflies and the large amount of territory covered by the plague furnished an interesting example of an insect outbreak. Since the relation of birds to any insect outbreak furnishes important information as to their economic value as checks, the value of an investigation into the relation of birds to this particular outbreak was evident.
3. Five species of birds were found to feed on the butterfly, *Eugonia californica*, the Brewer blackbird (*Euphagus cyanocephalus*), western meadowlark

(*Sturuella neglecta*), western kingbird (*Tyrannus verticalis*), blue-fronted jay (*Cyanocitta stelleri frontalis*), and Say phoebe (*Sayornis sayus*).

4. Four out of five species found to feed on the butterfly are numbered among the birds whose usual food habits justly subject them to severe criticism from the farmer.

5. The Brewer blackbird (*Euphagus cyanocephalus*) was found to be the most efficient check both on account of numbers and food habits. When the comparative number of individuals of the different species of birds were considered, it was found that the Brewer blackbird took 95 percent of all the butterflies eaten by birds. In this particular outbreak, therefore, one species of bird rather than birds in general, played the greatest part in the destruction of the insect.

6. The examination of thirteen stomachs of the red-winged blackbird (*Agelaius phoeniceus*, subspecies?) showed over 93 percent of its food to be vegetable matter, thus bringing out the vast difference in food habits between this bird and the Brewer blackbird (*Euphagus cyanocephalus*), 83 percent of whose food was animal matter.

7. *Eugonia californica* in the butterfly stage, probably on account of its large size, was not eaten by any species of bird smaller than the Say phoebe. The smaller birds probably had a more intimate relation to the outbreak when the insect was in the larval and pupal stage.

8. The birds in feeding on the butterfly attacked the insect at a critical point in its life history and were therefore of more value as a check than they would have been had they fed on the larva or pupa.

9. A comparison of the food of birds taken before the plague with that of birds taken while the plague was at its height, showed that birds had varied their food habits and had taken advantage of the abundant supply of insect food in the form of butterflies. Their value as checks in this particular insect outbreak, therefore, was real.

10. The data collected shows of what value birds may be in the checking of an insect outbreak rather than their value in the prevention of an outbreak.

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FURTHER NOTES FROM SANTA CRUZ ISLAND

By ALFRED B. HOWELL and A. VAN ROSSEM

THE topography of Santa Cruz Island is more varied than that of any other of the islands comprising the Santa Barbara group, and it has a corresponding diversity of bird life. Its greatest altitude is nearly three thousand feet; for the most part it is grass land with extensive barren stretches, and canyons filled

with oak trees and scrubby growth. There is one tract, however, that appears to possess a touch of boreal at its highest part. It is composed of dense forests of the Santa Cruz pine, broken by precipitous dark gorges, with growth that strongly reminds one of northern Oregon. Here in this pine region we stayed from April 24 until May 2, 1911.

Mr. C. B. Linton during his long visit to this island in 1907 (CONDOR X, 1908, pp. 124-128) has given us such an excellent list of the birds which occur there that we deem it unnecessary to do more than record those of the sixty-six species we observed which are not in his list, and to mention facts of especial interest.

***Aechmophorus occidentalis*.** Western Grebe. At least one seen.

***Lunda cirrhata*.** Tufted Puffin. Rather common, and reported by the fishermen as breeding at the northern end of the island.

***Larus glaucescens*.** Glaucous-winged Gull. A group of three seen.

***Larus delawarensis*.** Ring-billed Gull. Not rare.

***Larus philadelphia*.** Bonaparte Gull. Several seen.

***Accipiter cooperi*.** Cooper Hawk. One pair in the pines acted as if it had a nest near by, but we were unable to locate it.

***Buteo swainsoni*.** Swainson Hawk. A single bird flew over, permitting a close inspection.

***Haliaeetus leucocephalus*.** Bald Eagle. Rather common, both adults and immature birds of last year. One pair had a nest in a pot-hole on a cliff along the shore, and another was about thirty feet up in a pine on the side of a canyon. It was occupied by one young the size of a large chicken, and the old birds were very aggressive.

***Aluco pratincola*.** Barn Owl. One seen flying silently over camp just after dark.

***Colaptes cafer collaris*.** Red-shafted Flicker. The flickers of Santa Cruz present an interesting problem which can be solved only by one who has the time to collect a large series of them. Unfortunately we were unable to get a shot at any but typical *collaris*. This is by far the commoner form, but others, by no means rare, certainly closely approach the Northern Flicker (*C. a. luteus*), and still others appear to be intergrades between the two.

***Otocoris alpestris insularis*.** Island Horned Lark. Although we searched diligently no Island Horned Larks were found. We looked in suitable localities, rolling grass land, but they are evidently of local distribution, as other observers have reported them as common.

***Aphelocoma insularis*.** Santa Cruz Jay. To us the most interesting bird on the island. Abundant in the pines. They were not as much in evidence as their cousins on the mainland, but when one did happen upon them they were as a rule unsuspicious. At this time of year they are quiet unless one of a pair is killed or a nest disturbed, and if one does not know where and when to find them they might almost escape notice. However, if one goes along with much noise, so that the jays know he is about, and then sits down at a convenient spot and remains quiet, their curiosity will get the better of them. In nine cases out of ten it is useless to watch in front because the birds will not come that way, but after several minutes, upon a surreptitious glance to the rear, a jay will be discovered sitting motionless on a pine branch a few yards away. Practically all of their nests contained young at this date. Two nests examined were placed about twenty feet up in "palo fierros", slim trees growing in small groves in the valleys, and were similar in construction to nests of the California Jay. One contained two small young and an addled egg, and the other had four young about a week old. A surprising

number of old nests were found, placed usually in the palo fierros or tall bushes, but sometimes in the pines.

Corvus corax sinuatus. Raven. Common. Two nests on the cliffs not twenty feet apart held tiny young.

Carpodacus mexicanus clementis. San Clemente House Finch. Exceedingly abundant near the shore where there were cacti and suitable caves, in the roofs of which to nest. One nest discovered held four incubated eggs, and an addled egg of the Western Flycatcher. As is not unusual with this form, great diversity of markings was encountered. Several males were taken with the usual scarlet replaced by yellow, and others in which the two colors were commingled; also one male in breeding condition marked precisely like a female except for five yellow feathers beneath the chin; and a female with a yellow rump.

Loxia curvirostra stricklandi. Mexican Crossbill. We were greatly surprised to find this bird in some numbers in the heavy timber at the top of the island, and in the short time that we were able to give to this section sixteen birds were seen. Some were in pairs and others in small companies. I believe it is highly probable that these birds are resident on the island, as the character of the country is suitable and May 1 seems rather late for them to be present if they were winter visitors only. The four individuals obtained are very large.

Zonotrichia leucophrys gambeli. Gambel Sparrow. Sparingly scattered over the brushy hillsides in pairs.

Zonotrichia coronata. Golden-crowned Sparrow. Two birds still present.

Aimophila ruficeps. Rufous-crowned Sparrow. Rather common in suitable places. One of the females of two pairs within fifty yards of camp, was incubating when shot April 26, as the absence of feathers upon her belly indicated.

Melospiza melodia graminea. Santa Barbara Song Sparrow. Two heard but none seen. They are common on other parts of the island, however.

Pipilo maculatus clementae. San Clemente Towhee. Not rare.

Hirundo erythrogastra. Barn Swallow. Abundant; frequently visiting a small spring near camp to obtain mud which they carried to the caves above the sea.

Lanius ludovicianus anthonyi. Island Shrike. Rare at this point as but two were seen, neither of which we obtained. They were remarkably wary.

Dendroica auduboni. Audubon Warbler. Several seen.

Thryomanes bewicki charienturus. San Diego Wren. Common everywhere and at this time feeding young.

Sitta canadensis. Red-breasted Nuthatch. Shared the Crossbills' range. About two dozen were seen and six taken. One bird was watched for half an hour while she was busily engaged in preparing a nesting site, so the species is resident. Those obtained average smaller than birds from the mainland and the east.

FROM FIELD AND STUDY

Tree-nests of the Point Pinos Junco and Other Notes.—The 27th of March, 1910, like many of the days that preceded it, was rainy. Mr. Henry W. Carriger and I, however, had previously decided on an outing, and although the inclement weather delayed, it did not deter us from starting for our destination in northern San Mateo County. This we reached in the early afternoon. To be exact it was the very locality described at length by Carriger and Pemberton in THE CONDOR as being the site of a Siskin colony.

Our first nest, one of the Point Pinos Junco (*Junco hyemalis pinosus*), was a strange depart-

ure from all previously recorded nest situations being placed 8 feet up in a Monterey cypress where it was well hidden in a thick clump of foliage. The nest, a well built structure consisting almost entirely of pine needles, contained four eggs in which incubation had begun. A second nest of the junco was found 16 feet up in the Monterey cypress in an open situation well out on the limb, and contained fresh eggs. This nest is even a better built structure than the first one found. It is a *very* compact affair of pine needles, roots, grasses and weed stems and well lined with various animal hair. (This nest was revisited on March 31 at which date the number of eggs had increased to four.) It might be inferred that on account of the extreme dampness of an unusually rainy spring the juncos had selected these elevated nesting sites in preference to the customary ground-locations. Whether this theory is correct or not it is interesting to note that we found a ground-nest on April 16 with young fully a week old. This nest was placed near the foot of a tree which, however, offered but little protection. There has been some question raised as to the identity of the juncos breeding in the region bordering the foothills in San Mateo County; but Mr. J. R. Pemberton who collected examples in this locality pronounced them typical *pinosus*.

Of more than passing interest were two nests found of the Santa Cruz Chickadee (*Penthestes rufescens barlowi*) both in natural cavities in Australian eucalyptus trees. The first, found by Carriger, held two eggs apparently deserted. The second, found by the writer, held seven fresh eggs which were placed in a cavity four feet above the ground and warmly lined with a great quantity of fur, red cow-hair and soft dry green moss. In this instance the sitting bird was flushed, although with Chickadees this is a circumstance of considerable rarity.

Other nests noted on the afternoon's outing were one of the California Shrike (*Lanius ludovicianus gambeli*) freshly built, one of the Green-backed Goldfinch (*Astragalinus psaltria hesperophilus*) nearly completed, and one of the Allen Hummingbird (*Selasphorus alleni*) with two fresh eggs. All three nests were placed in Monterey cypress trees.—MILTON S. RAY.

Bobolink in San Mateo County, California.—Mr. Vernon Shephard, taxidermist, of 28 North Stanyan Street, San Francisco, California, has recently donated to the Museum of Vertebrate Zoology of the University of California a specimen (no. 19731) of Bobolink (*Dolichonyx oryzivorus*). The bird was taken by Mr. Shephard between June 5 and 10 near San Bruno Lake in San Mateo County. The bird is a male in "nuptial" plumage.—W. P. TAYLOR.

Notes from Alaska.—The University of California Museum of Vertebrate Zoology has recently received as gifts from Mr. Allen Hasselborg of Juneau, Alaska, specimens of birds taken by him in southern Alaska, some of which are of sufficient interest to justify the recording of their capture. A letter accompanying the last skins received contains brief notes on these and additional species, and extracts from it are appended below. The compiler of these notes can vouch for Mr. Hasselborg's thorough acquaintance with the species referred to, and there need be no hesitation in accepting the records in the two cases where specimens were not taken. The numbers pertain to the bird collection of the Museum.

Gavia adamsi. Yellow-billed Loon. Adult, not sexed, head only saved. Mole Harbor, Admiralty Island, May 25, 1911 (no. 19119).

Adult male; "off Dixon Harbor" (on the mainland, a little north of Cross Sound); August 17, 1911 (no. 19728). He further remarks "I have seen three others this year [1911] one about the first of June, off Point Hugh [southernmost point of Glass Peninsula, Admiralty Island], one in the Favorite Channel [at south end of Lynn Canal], June 5, and one in Berner's Bay [east shore of Lynn Canal], June 17. Last year I saw one off Lituya Bay about June 20, and one in Gastineau Channel [between Douglas Island and the mainland] in November."

These records of the Yellow-billed Loon are of interest, as the various expeditions sent to the region by the Museum of Vertebrate Zoology failed to secure any specimens. In 1907 a single bird was seen at Windfall Harbor, Admiralty Island (see Grinnell, Univ. Calif. Publ. Zool., vol. 5, 1909, p. 182); on the 1909 expedition, which traversed the length of the Alexander Archipelago, the species was not encountered at all.

Picoides americanus. American Three-toed Woodpecker. Three specimens, all from Admiralty Island; adult female, Oliver Inlet, January 1, 1910 (no. 16716); adult male, Kanalku Bay, June 18, 1910 (no. 16717); adult male Seymour Canal, November 15, 1910 (no. 19729).

He also found two nests at Berner's Bay, in June, 1911, but was unable to examine them.

Chaetura vauxi. Vaux Swift. "I saw Vaux Swifts repeatedly in June and July in the big valleys running back from Berner's Bay, and on August 24 saw four in the valley at the head of Excursion Inlet." Excursion Inlet is on the northern shore of Icy Strait, between Lynn Canal and Glacier Bay.

Zonotrichia coronata. Golden-crowned Sparrow. "On June 21 I saw a Golden-crowned Sparrow at 2500 feet elevation at Berner's Bay, and believe it was nesting."—H. S. SWARTH.

Correction. In "Some Birds of the San Quentin Bay Region, Baja California", on page 152 of the last issue of THE CONDOR, Long-billed Curlew (*Numenius americanus*) should read Hudsonian Curlew (*Numenius hudsonicus*) the writer having made this blunder in writing up the article from his notes.—ALFRED B. HOWELL.

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EDITORIAL NOTES AND NEWS

There is a growing custom among museum and private collectors concerning which a word of caution may be in order. We refer to that of securing the services of missionaries, traders, prospectors, and others not well versed in ornithology to gather eggs of rare northern birds, these eggs to be preserved and distributed as scientific specimens. It is extremely difficult in many cases to insure accurate identity of the various geese, ducks, waders and gulls even by the trained field naturalist. Although a few bird skins may have been saved, the discrimination of species on the ground where scores of individuals representing many species nest in close proximity to one another, is a difficult matter. The tendency to *gather in* a big showing is liable to overcome the best of intentions with regard to accuracy. The grave danger scientifically comes of course when data accompanying such eggs is published. We have no doubt but that there are many bad records in our literature traceable to some such source. This danger should be vigorously guarded against, even if by so doing a museum collection does not grow so rapidly.

Mr. J. H. Riley and Mr. N. Hollister, both of the staff of the United States National Museum, spent a portion of the past summer collecting in western Alberta and eastern British Columbia. Specimens, practically topotypes, of Gray-crowned Rosy Finch, White-tailed Ptarmigan and Franklin Grouse, were obtained.

Part V of Ridgway's "Birds of North and Middle America" is reported almost ready for distribution, Mr. Ridgway being now occupied upon Part VI. His color book is to be expected shortly as all the color work has been done and only the text remains to be printed.

Mr. G. Willett's "Birds of Southern California" is nearly ready for the printer. It is to be published by the Cooper Ornithological Club as Pacific Coast Avifauna No. 7, and distributed free to all members. Its cost will be defrayed by private subscription. Mr. Willett's contribution will consist of an exhaustive compilation of all that is known to date in regard to the manner of occurrence of the birds of that part of southern California lying west of the desert divide. We look forward with great interest to the appearance of this carefully executed work.

There will shortly appear from the University of California Press two notable papers chiefly of an ornithological nature. These are: Mr. H. S. Swarth's report upon the Alexander Expedition to Vancouver Island in 1910, and the concluding part of Mr. W. P. Taylor's report upon the field work of the Alexander Expedition to Nevada in 1909.

Mr. W. Leon Dawson spent a goodly portion of the field season just closed in out-door work contributory to his projected "Birds of California." The Farallone Islands and the Mount Whitney region shared in this year's attention, each locality contributing to Mr. Dawson's stock of first-hand ornithology. The editor of THE CONDOR has been privileged to examine some of the photos obtained, and he enthusiastically asserts that they include some of the most successful bird photographs he has ever seen.

PUBLICATIONS REVIEWED.

BIRDS AND MAMMALS OF THE 1909 ALEXANDER ALASKA EXPEDITION BY HARRY S. SWARTH. [=Univ. Calif. Publ., Zool., VII, pp. 9-172, pls. 1-6; Jan. 12, 1911].

In continuation of its well-planned and well-executed campaign in Alaska, the University

of California Museum of Vertebrate Zoology presents this liberal measure of results for a single season's work. The author, with one assistant, Mr. A. E. Hasselborg, spent the six months from April to October in visiting sixteen islands and six mainland localities in southeastern Alaska, reaching practically all important points not covered by the previous expedition of 1907. Somewhat more than 1000 specimens of birds and mammals were collected and a great amount of trustworthy information obtained. The list of birds totals 137 forms of which the 31 not attested by specimens are mostly included upon the careful observation and competent authority of the author himself. The extended critical and ecological notes bristle with facts new, interesting, and pertinent to particular problems. The notes on spring migration are especially welcome as very few observations have been made in this region earlier than May and June. In spite of the evident active field work done, one notes with no surprise that but little is recorded of nesting habits and the more intimate features of the bird life. Such matters must be left to local observers, for the itinerant collector in virgin fields can never spare the time for them. The critical notes are rather too numerous for specific mention, but it may be said that they carry a spirit of fairness and in a number of cases matters are presented in a new light or with additional and highly pertinent material tending to elucidate the status of various species and subspecies. Among the forms touched upon in this manner are *Macrorhamphus griseus scolopaceus*, *Buteo b. alascensis*, *Picoides a. fumipectus*, *Dryobates v. harrisi*, *D. p. glacialis*, *Passerculus s. savanna*, *Junco oregonus*, *Hirundo e. palmeri* and *Dendroica c. hooveri*. No new forms were discovered, and in view of the large collections and their careful study, this seems to indicate that possibilities in this direction are well nigh exhausted in a long productive region.

A very interesting section of the report, devoted to "Distributional Considerations," is all too short, although the modest statements of facts and conditions which it includes are perhaps better without ingenious elaboration of the theories to which they might lend themselves. In finding no faunal relationship between Prince of Wales Island and the Queen Charlotte group, the author is at variance with former writers who had the advantage of the possession of extensive material from both localities.

Doubtless he is right as to the reference of specimens, but we venture the belief that the Queen Charlotte forms are approached more closely by specimens from Prince of Wales Island and nearby islets than from elsewhere.

Arrangement, typography, and proofreading are above reproach, but the fastidious might ask for a more dignified abbreviation than Grin. for Grinnell, especially as we do not find on the same page, corresponding abridgments to Les., Lin., Nut., and Pal.—W. H. OSGOOD.

THE WARD-MCILHENNY WILDFOWL REFUGE. By CHARLES WILLIS WARD [=Forest and Stream, vol. LXXVII, no. 5, July, 1911, pp. 167-170, 5 ills.]

It is hard to overestimate the practical value of such game protection as is here described. To set aside large tracts of suitable land (there are 13,000 acres in this refuge) on which absolutely no shooting is allowed, will most assuredly protect the game thereon, while, as the writer says, "laws limiting their killing, prohibitions of the sale of game, societies for the protection of game, all seem inadequate to prevent the steady destruction of wild life". Of game laws, supposedly protective, but too often juggled with and adjusted to benefit various coteries of shooters, rather than the game, we have a superabundance, frequently so complicated and contradictory in different parts of the same state that it is hard for the conscientious sportsman to obey, and frequently easy for the unscrupulous to evade them. After years of experimentation along the same general lines we are forced to admit that our present system of game preservation is a failure, and that unless some radical changes are made, many of our game birds and mammals, and many non-game birds as well, are certain to disappear. Some have already gone. The "game refuge" idea holds out a gleam of hope. It looks practical and reasonable, and, linked with sensible restrictive laws covering the country at large, should do much to arrest the deplorable decrease of animal life. It is an undertaking that should be carried out by the various state governments, but the states are slow to move in such matters, and any private individuals stepping in meanwhile and doing as Messrs. McIlhenny and Ward have done deserve the fullest measure of praise and credit for their work. They seem to be going ahead in an eminently practical and unsentimental way. Sportsmen themselves, and fond of shooting, they are attacking the problem from the standpoint not that it is wrong to kill for sport but that it is eminently foolish and unsportsmanlike to utterly destroy so valuable an asset as the game of a country, and leave nothing for the morrow. We wish them the fullest measure of success. Their efforts should be given the widest publicity, and the results studied carefully. Would that other wealthy men could be found to attempt the same thing elsewhere; such refuges are badly needed in our own state, and could prob-

ably be established at a comparatively low cost.

In this same number of *Forest and Stream* (page 197) there is a brief editorial account of a heronry on the McIlhenny estate. It is stated to contain at least 100,000 birds, including the following species: Snowy Heron, Little Blue Heron, Louisiana Heron, Green Heron, Yellow-crowned Night Heron, and Egret; and has been built up from a very few pairs, simply by carefully protecting the birds at all times.—H. S. S.

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

JUNE—The June meeting of the Southern Division of the Cooper Ornithological Club was held on Thursday evening, June 28, 1911, in the office of H. J. Lelande, 246 Wilcox Building, Los Angeles.

The meeting was called to order by President Morcom, with the following members present: Messrs. Robertson, Willett, Alphonse Jay, Judson, Granville and Lelande.

On motion by Mr. Robertson, seconded by Mr. Willett, and duly carried, Mr. Lelande was appointed Secretary *pro tem*.

The minutes of the May meeting were read and approved.

On motion by Mr. Robertson, seconded by Mr. Judson, and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Misses Kellogg and Blayney, and Messrs. Walker, Hamilton, Smith, Evermann, Carriker, Shaw, Rust, Stevens, Jordan, Barbour, Nehrling, Kermodé, Wells, Durfee, Mueller, Barker and Lane, whose names were presented at the May meeting. The following application for membership was presented: Eleanor Poitevent Earle, Palma Sola, Florida, proposed by A. B. Howell.

A communication from Mr. Frank S. Daggett to Secretary Law was read. In this letter Mr. Daggett stated that there was a probability of his making his permanent residence in California; all those present being very much pleased to hear such good news.

The following papers were read: "Further Notes from Santa Cruz Island" by A. B. Howell and A. Van Rossem; "May Notes from San Jacinto Lake" by G. Willett and Antonin Jay; and "An Early Spring Trip to Anacapa Island" by Homer L. Burt. Adjourned.—H. J. LELANDE, *Secretary, pro tem*.

JULY—The July meeting of the Southern Division of the Cooper Ornithological Club was held on Thursday evening, July 27, 1911 at the office of H. J. Lelande, 246 Wilcox Building, Los Angeles.

In the absence of the President the meeting was called to order by Vice-President H. J. Lelande with the following members present: Messrs. H. C. Tracy, Howard Robertson, Otto Zahn, A. Jay, George Willett, H. J. Lelande, W. Lee Chambers. In the absence of the Secretary Mr. W. Lee Chambers was appointed by the Chair as Secretary *pro tem*.

The minutes of the June meeting were read and approved.

On motion duly made and carried, Mrs. Eleanor P. Earle was elected to active membership.

The following applications for membership were presented: Thos. M. Trippe, Howardsville, Colorado, W. Linfred Dunbar, Bridgeport, Connecticut; E. J. Court, Mt. Pleasant, Washington and Mrs. J. H. Lancashire, Alma, Michigan; all proposed by Mr. A. B. Howell; and Miss Gretchen L. Libby, Redlands, California, proposed by Mr. H. S. Swarth.

The minutes of the Northern Division for the July meeting were read. Also three papers were read by Mr. Lelande as follows:

"A Hybrid Quail" by M. E. Peck; "Some Colorado Horned Owl Notes" by E. R. Warren; and "Swallow Notes from Fresno" by J. G. Tyler.

Mr. George Willett presented some preliminary notes from his forthcoming "Birds of Southern California", which were very interesting and brought out much discussion. Adjourned—W. LEE CHAMBERS, *Secretary pro tem*.

AUGUST—The August meeting of the Southern Division of the Cooper Ornithological Club was held on Thursday evening, August 31, 1911 at the office of H. J. Lelande, 246 Wilcox Building, Los Angeles. In the absence of the President, the meeting was called to order by Vice-President Lelande, with the following members present: Messrs. George Willett, Loye Holmes Miller, W. Lee Chambers, Antonin Jay and J. E. Law.

The minutes of the July meeting were read and approved. On motion duly made and carried, Mrs. J. H. Lancashire, Miss Gretchen L. Libby, Messrs. Thomas M. Trippe, W. Linfred Dunbar and E. J. Court proposed at the July meeting were duly elected to active membership. The applications of E. J. Darlington, Wilmington, Delaware, proposed by A. B. Howell, and Bernard Bailey, Corvallis, Montana, proposed by H. S. Swarth, were presented. On motion by Mr. Willett, seconded by Mr. Miller and duly carried, the resignation of Mr. Chas. Reining was accepted with regret. The Secretary then read a very interesting article on the nesting of the Anthony Vireo, accompanied by two cuts, by Jennie V. Getty. This article describes the taking of the first set of four eggs of this bird and other

interesting nest notes. Adjourned.—J. E. LAW, *Secretary*.

NORTHERN DIVISION

JULY—The July meeting of the Northern Division of the Club was held at the Museum of Vertebrate Zoology, Berkeley, on Saturday evening, July 22. Vice-President Carriger was in the chair, and the following members were present: M. S. Ray, J. J. Boyce, O. Heinemann, H. C. Bryant, L. H. Miller, H. L. Coggins, Miss Winifred Wear, and H. S. Swarth. Miss Gretchen L. Libby and Miss Wear were present as visitors. The minutes of the last meeting (held on April 22) were read and approved, and the minutes of the June meeting of the Southern Division were also read.

The following individuals were elected to membership in the Club: H. Parker, S. S. Visher, L. H. Paul, M. S. Crosby, L. M. Terrill, W. J. Brown, A. H. Helme, C. M. Case, L. Tremper, G. Wells. Applications for membership were read as follows: R. P. Sharples, W. W. Arnold, T. M. Trippe, Eleanor P. Earle, B. W. Evermann, F. Smith, M. A. Carriker, Jr., B. A. Hamilton, A. Walker, all proposed by A. B. Howell; and Miss Gretchen L. Libby, Redlands, California, proposed by H. S. Swarth. There was some discussion of the proposed revision of the Club Constitution, but in the absence of two members of the committee having the matter in charge, no action was taken.

Mr. Boyce gave a talk on some of his experiences collecting water birds on Forrester and Hazy islands, in southeastern Alaska, he having made the dangerous landing on these rather inaccessible islands, on several occasions. Mr. Carriger read a letter from J. R. Pemberton, now engaged in geological work in Patagonia, giving his impressions of the bird life of that region, as compared with that of California, and telling of some of the more striking species.

A paper by M. E. Peck was then read, descriptive of a hybrid quail; a cross between the Mountain and Valley Quail, accompanied by the specimen. Adjourned.—H. S. SWARTH, *Secretary*.

AUGUST—The regular monthly meeting of the Northern Division of the Club was held at the Museum of Vertebrate Zoology, Berkeley, on Saturday evening, August 19. Vice-president Carriger was in the chair, and the following members were present: Chester Lamb, M. P. Anderson, D. Brown, and H. S. Swarth. Mr. George J. Barron was present as a visitor. The minutes of the July meeting were read and approved, followed by the Southern Division minutes for July.

The following, whose names were presented at the last meeting were elected to membership in the Club: Alex Walker, Dr. B. A. Hamilton, M. A. Carriker, Jr., F. Smith, B. W. Evermann, T. M. Trippe, Dr. W. W. Arnold, R. P. Sharples, Mrs. E. P. Earle, and Miss Gretchen L. Libby. New names proposed for membership were, E. J. Court, Washington, D. C.; W. L. Dunbar, Bridgeport, Conn.; and Mrs. J. H. Lancashire, Alma, Mich., all proposed by A. B. Howell; and Bernard Bailey, Corvallis, Montana, proposed by H. S. Swarth. Adjourned.—H. S. SWARTH, *Secretary*.

SEPTEMBER.—The September meeting of the Northern Division was held at the Museum of Vertebrate Zoology, on Saturday evening, September 16. President Mailliard was in the chair and the following members present: Miss A. M. Alexander and Miss L. Kellogg, and Messrs. M. P. Anderson, W. P. Taylor, O. Heinemann, J. Grinnell, H. C. Bryant, J. Boyce, C. Camp, H. W. Carriger, R. S. Wheeler and H. S. Swarth.

The minutes of the Northern Division August meeting were read and approved, followed by the reading of the Southern Division minutes for August. The following were elected to membership in the Club: W. Linfred Dunbar, Bridgeport, Conn., Edward J. Court, Washington, D. C.; and Mrs. J. H. Lancashire, Alma, Mich., all proposed by A. B. Howell; and Bernard Bailey, Corvallis, Montana, proposed by H. S. Swarth. The name of E. J. Darlington, Wilmington, Delaware, was presented by A. B. Howell, and J. S. Douglas, Bakersfield, Calif., by W. Lee Chambers, to be acted upon at the next meeting. The resignation of Charles Reining, Davenport, Iowa, was accepted.

A communication from Mr. Chambers was then read, giving an informal statement of the present financial status of the Club, a very gratifying exposition of the work accomplished by the business managers during the past year.

The committee on the revision of the Club constitution (J. Mailliard, W. P. Taylor, and O. Heinemann) presented its report. Several slight changes and additions were suggested, and the whole document was then formally approved, to be sent at once to the Southern Division before its final adoption.

Mr. M. P. Anderson gave an entertaining talk descriptive of his experiences in western China and Thibet, where he spent some years collecting birds and mammals for the British Museum. After briefly indicating his route and collecting stations, illustrated by a map, he spoke of the more conspicuous mammals and birds, and also of the hunting methods employed by the natives of the country. Adjourned.—H. S. SWARTH, *Secretary*.

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Number 1



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Fig. 1. LONG-BILLED DOWITCHERS FEEDING
PHOTOGRAPHED BY W. LEON DAWSON NEAR SANTA BARBARA

THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XIV

January-February, 1912

Number 1

THE SHORE BIRDS OF SANTA BARBARA

By J. HOOPER BOWLES and ALFRED B. HOWELL

WITH THREE PHOTOS BY J. H. BOWLES

SANTA BARBARA, although apparently presenting conditions no more favorable for a heavy migration of shore birds than most other parts of the southern California coast, seems to be a preferred stopping place for the members of this order.

Mr. Bowles has made numerous observations among the *Limicolae* of this region since November, 1909, and work was carried on by both authors with the waders exclusively from August 8 until September 18 of the present year. No observations are recorded after December 1, 1911.

Field work was done at a shallow brackish slough near the beach at Goleta, a point ten miles west of Santa Barbara, at a large, but very shallow fresh-water marsh within the city limits, herein designated as "the flats", and at an extensive tide marsh with miles of tide creeks near Carpinteria, some eight miles east of town. The intermediate beaches were thoroughly explored. There were no rocky stretches along the shore, but occasionally outcropping boulders, or reefs, that were for the most part covered with tar. This substance floats up from a few miles down the coast and is a source of annoyance to all the water birds, all too frequently adhering to their feathers and causing a lingering death.

It is an interesting and probably a well-known fact that the birds of this group are much more suspicious of danger threatening from above than of anything approaching on their own level. The Black-bellied Plover, for example, will take instant flight if there is the slightest movement of the tall grass or bushes at the top of a cliff overlooking their feeding grounds. It may also be of value to state that they pay far less attention to a movement in the water than to one on shore, as we found it an easy matter to approach within a short distance of the most wary by wading towards them in the tide creeks, submerged to our shoulders.

Mr. Bowles has made a careful examination of the contents of the stomachs of all specimens taken, and the number of injurious insects, beetles in particular, destroyed by this order of birds is surprising. Beetles, squash-bugs, etc., were

found in the following species: Red Phalarope, Northern Phalarope, Wilson Phalarope, Pectoral Sandpiper, Baird Sandpiper, Red-backed Sandpiper, Western Sandpiper, Killdeer, Semipalmated Plover and Snowy Plover; the plovers in particular had eaten very little else. Hence it may be seen how exceedingly beneficial these birds are from an economic standpoint, making it of doubtful wisdom to include them among the gamebirds.

Under each heading is given the earliest and latest dates, in both spring and fall, at which the species was observed.

We wish especially to acknowledge our indebtedness to Mr. Bradford Torrey, of Santa Barbara, for numerous important dates which are noted in our list. The illustration kindly donated by Mr. W. Leon Dawson is only one of many that he took in preparation for his coming work on "The Birds of California".

Phalaropus fulicarius. Red Phalarope. Irregular spring and fall migrant; rare, except during late fall of 1911. Spring: May 25, 1911 (Torrey) to May 31, 1911 (Torrey). Fall: September 26, 1910, to November 30, 1911.

Of the three phalaropes the present species is by far the most interesting; indeed its habits are more varied than those of any other shore bird. The fall of 1911 was a most unusual one for many of the *Limicolae*, including Red Phalaropes. Mr. Torrey recorded their arrival on October 29, and they gradually became more numerous until November 8 when the heaviest flight occurred. The day was overcast, with a strong southwesterly wind, and Mr. Bowles visited both Carpenteria and Santa Barbara flats. Phalaropes were everywhere, in the ocean kelp half a mile from shore, on the beach, and swimming about on the inside esteros, six or eight hundred being a very conservative estimate of their numbers. The flight was evidently a very large one, extending over a considerable stretch of coast, as a few days later they were found to be equally abundant at Goleta. This flight must have originated at a great distance, as all birds examined upon their arrival, were in a most pitiable state of emaciation, with the merest scrap of flesh on the breast. Many were so exhausted that they lay on the beach with only the smallest attempt to get out of the way, while several were picked up dead that showed no signs of injury. A careful examination of the intestines showed no evidence of tapeworm or disease of any kind.

Their feeding habits were varied and most interesting. They could be found on the wet mud flats with the Pipits and Least Sandpipers, on the ocean beach with the Sanderlings, or swimming and "whirling" on the esteros in true phalarope style. In obtaining their food in deeper water they frequently thrust their heads well beneath the surface, occasionally tilting their tails skyward and dabbling like so many little ducks. Neither of the other phalaropes were seen to much more than dip the tip of the beak below the surface. Their diet may truly be called animal, mineral and vegetable, for in their stomachs was found an abundance of beetles, bugs, flies, mud larvae, tiny snails, seeds, and small particles of sand. Considering that they are rather maritime, they show a great adaptability when ashore.

Lobipes lobatus. Northern Phalarope. Not common in the spring migration, but swarming in the fall. Rare in the tide marshes. Spring: May 8, 1911 (Torrey) to June 16, 1911. Fall: August 4, 1911 (Torrey) to November 16, 1911.

Soon after their arrival in numbers, which occurred late in August this year, they began the practice of "whirling" to obtain food. As would seem obvious, it was done only in shallow water in order that the miniature whirlpools thus created would disturb the food at the bottom and draw it to the surface. However, for this practice to be a success certain conditions must be propitious; for example, on

cloudy days little or no "whirling" was observed. These tiny whirling dervishes spin around so fast and so continuously that when a good sized flock is in full action, it makes one fairly dizzy to watch them. In the latter part of September fully a thousand of these dainty mites were congregated on the flats, and scores of them would weave busily back and forth among the clumps of water growth, where with a little patience, one could approach within a few feet of them. One individual was seen to indulge in quite a little play by himself, bucking up and down in the water, submerging his head, rolling upon his side, and tearing madly around in a truly ludicrous way.

***Steganopus tricolor*.** Wilson Phalarope. Rather rare but regular spring and fall migrant. Seen only in fresh water. Spring: May 20, 1911. Fall: July 22 to September 8, 1910. This phalarope seems much less inclined towards swimming than either of the other two. Indeed, with few exceptions, all seen were walking

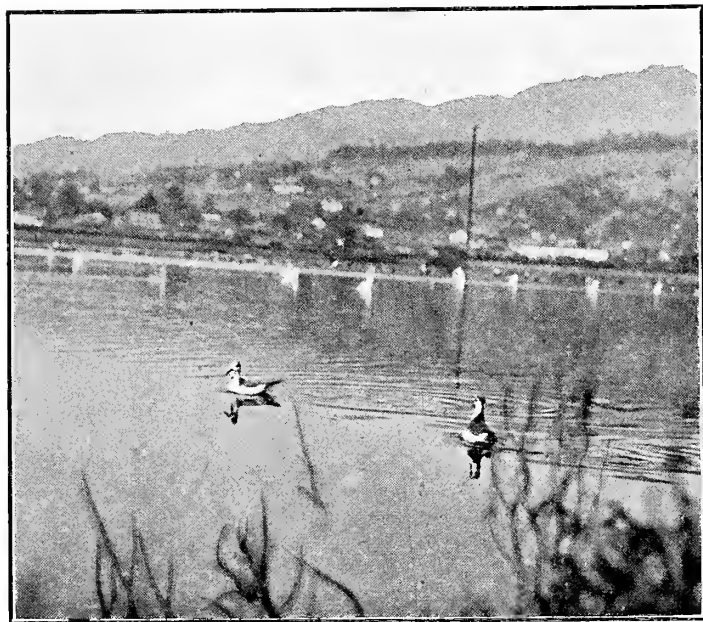


Fig. 2. RED PHALAROPES "WHIRLING"

about on the mud or in the shallow water. Their long yellow legs, together with the fact that they kept mostly by themselves, cause the fall birds to be easily mistaken for Western Solitary Sandpipers.

***Recurvirostra americana*.** Avocet. Regular, but not common spring and fall migrant. Spring: one bird on March 18, 1911. Two others on May 20, 1911. The March bird was in winter plumage, and remained in the same locality for nearly two weeks. The last seen were in full summer dress. Fall: one seen September 20, 1911 (Torrey). Two seen October 12, and one November 1, 1911.

***Himantopus mexicanus*.** Black-necked Stilt. Regular, but never a common, spring migrant. Never noted in fall. Spring: April 14 to May 4, 1911.

***Gallinago delicata*.** Wilson Snipe. Regular but not common in fall, winter and spring. Spring: latest, April 27, 1911. Fall: earliest, October 27, 1911. There seems to be no good reason why these birds should not be abundant here, but such never appears to be the case.

Macrorhamphus griseus scolopaceus. Long-billed Dowitcher. Abundant spring and fall migrant. Spring: March 10 to May 2, 1910. Fall: July 18, 1910, to November 1, 1911. A specimen taken by Mr. W. Leon Dawson on August 11, 1911, was the only one seen by us this fall that was still in nuptial plumage. Nearly every day flocks of from three to forty-one individuals were present. They showed the greatest preference for the tide marsh, while none at all were seen on the ocean beaches. This was one of the tamest species noted, being almost, if not quite, as confiding as the Least and Western Sandpipers.

Tringa canutus. Knot. Seen only during the fall of 1911. The first seen were two males that were collected by Mr. Bowles on the ocean beach August 21. Two more were seen on the 29th; one of them collected still had considerable reddish on the breast. One bird was seen on the 30th, another September 5, and still another on the 7th, which last stayed in the same locality for at least three days. There is no spring record for this species in southern California, and we have been unable to find any for the state.

Pisobia maculata. Pectoral Sandpiper. Rare, but evidently a regular spring and fall migrant. Mr. Bowles saw one April 14, and another September 8, 1910, the latter being collected on the following day. This bird was, on both occasions, feeding on the ocean beach with some Killdeer, a most unusual situation for this lover of the grassy marshes. On September 20, 1909, Mr. Torrey saw three together, his latest date being September 23, 1909 (CONDOR XII, 1910, p. 45).

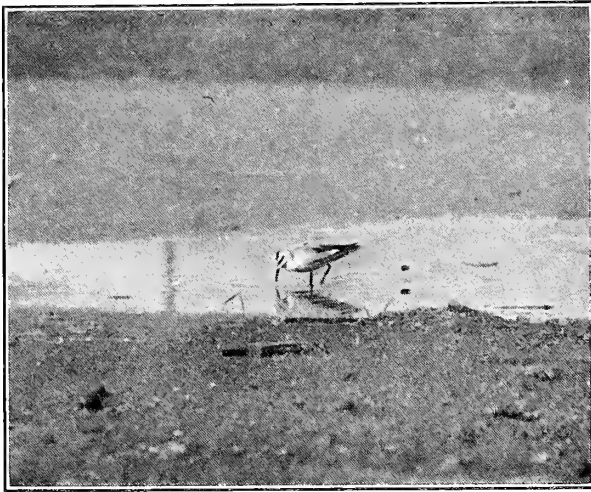


Fig. 3. RED PHALAROPE WADING

Pisobia bairdi. Baird Sandpiper. Regular fall migrant; sometimes common. Not recorded in the spring. Fall: August 10, 1910, to September 7, 1911. Mr. Howell collected our first specimen of this species on August 11, 1911, feeding with a flock of Least Sandpipers.

During 1910 Mr. Bowles saw only seven, but this year they were common on the flats and at Goleta, though none were seen on the tide marsh. They fed with the smaller sandpipers at times, though perhaps more often off by themselves, while once at our arrival three of them left the slough with a party of Killdeer to feed on the higher beach. Three or four could be found at any time between August 11 and September 4, while at least twelve, of which nine were in one flock, were on the flats September 2. As with the Knot, there seems to be no state record of this bird occurring in the spring. There seems to have been very little systematic collecting of shore birds done in the spring on this coast, but there remains a strong possibility of these two species having a different spring route to the north than by way of the California coast.

At least two individuals were seen in 1911, one August 18 on the beach, the other August 20 at Goleta. What we believe to have been the same bird as the last mentioned stayed at least until September 20.

***Pisobia minutilla*.** Least Sandpiper. Abundant from late July until late March, though much less numerous in winter. July 18 to April 1, 1910. It seems strange that this, the smallest of the order, should be one of the few that remain to winter with us. One frequently finds single birds, or two or three together, pattering around the wet kelp on the ocean beach, often waiting to examine an intruder from under the very feet of the latter before taking wing.

***Pelidna alpina sakhalina*.** Red-backed Sandpiper. Occurs in both spring and fall, but is never very common. Spring: March 10, 1910, to April 20, 1911. Fall, September 9 to November 23, 1911. A female was taken September 9, 1910, in almost full nuptial dress, after which none were noted until the 18th, when one was seen in winter plumage. It is hard to understand why these birds do not winter with us here, since Mr. Bowles found it nothing unusual to see them in winter in the vicinity of Tacoma, Washington.

***Ereunetes mauri*.** Western Sandpiper. Very abundant spring and fall migrant. Spring: February 28, 1910, to May 16, 1911. Fall: July 11, 1910, to December 5, 1909. Sometimes these little gleaners fairly swarm in their favorite haunts, and it is a beautiful sight, when some Marsh Hawk in search of mice flaps over them, to see the whole flock rise as one bird and go through precise evolutions of wheeling and fleeing up the shore, all the time twittering blithely.

***Calidris leucophaea*.** Sanderling. Abundant winter resident of Santa Barbara, but for some reason not common at Carpinteria or Goleta. Earliest arrival July 29, 1910; last seen May 26, 1911, when most were in nuptial dress. One collected August 25, 1911, was still in breeding plumage. In spite of their numbers it is only by the rarest chance that we see any of these little fellows on the mud flats, for all of their time is spent on the ocean beaches. Frequently they may be found sunning themselves on the warm, dry sand, with a large company of Snowy Plovers, but their most characteristic occupation is chasing the retreating waves oceanward after stranded sandfleas, and in their turn being chased back up the beach by the incoming breakers.

***Limosa fedoa*.** Marbled Godwit. Common fall migrant, but rather rare in spring and summer. Fall: August 20 to November 1, 1911. Although local residents have reported them occasionally in spring and summer, we have not seen them at those seasons excepting a single bird June 15, 1911. This one was exceedingly tame and, although well able to fly, remained on the beach for several days in company with the gulls.

***Totanus melanoleucus*.** Greater Yellow-legs. Regular, but not common, spring and fall migrant. Rare in winter. Spring: March 20, 1911, to May 16, 1910. Fall: July 18, 1910, to January 2, 1911. A female shot August 29 was the only one noted by us this fall until October 14. Contrary to custom she was in an untalkative frame of mind.

***Helodromas solitarius cinnamomeus*.** Western Solitary Sandpiper. Rare spring migrant, and usually not at all common in fall. Spring: one seen April 30, 1910. Fall: July 22, 1910, to September 7, 1911. The Solitary Sandpiper, more than any other shore bird, is inclined to restrict itself to the grassy mud flats and wet meadows, in fact we have never seen it on the ocean beach or open flats. This species, and the Spotted Sandpiper also, will sometimes dive and swim under water when wounded, using the wings as propellers in the same manner as do the ducks.

***Catoptrophorus semipalmatus inornatus*.** Western Willet. Rare in spring migration, but very common in the fall; casual in summer, one seen by Mr. Torrey on June 24, 1910. Spring: April 16, 1910. Fall: July 25, 1911 (Torrey) to Novem-

ber 1, 1911. As a rule these birds were less wary than any of the other large waders, often showing a considerable degree of curiosity.

Heteractitis incanus. Wandering Tattler. Rare fall migrant. Seen September 5 and 15, 1911, and a male collected September 14, 1910. These birds were all very wild. Their rarity here is doubtless due to the absence of suitable feeding grounds.

Actitis macularius. Spotted Sandpiper. Very rare in spring, and never really common in fall. Fall: July 18 to September 17, 1910. On the latter date twelve birds were seen. About equally distributed on the mud flats and the more rocky portions of the ocean beach.

Numenius americanus. Long-billed Curlew. Regular spring and fall migrant, but never common. Spring: May 2, 1911. Fall: August 25, 1911, to October 15, 1910. The August bird remained in the same locality for several weeks, no others being seen there. He seemed to greatly prefer the company of the Western Willets to that of the very numerous Hudsonian Curlews, but was most often found feeding alone in the marsh. He was much more wary than either of the above

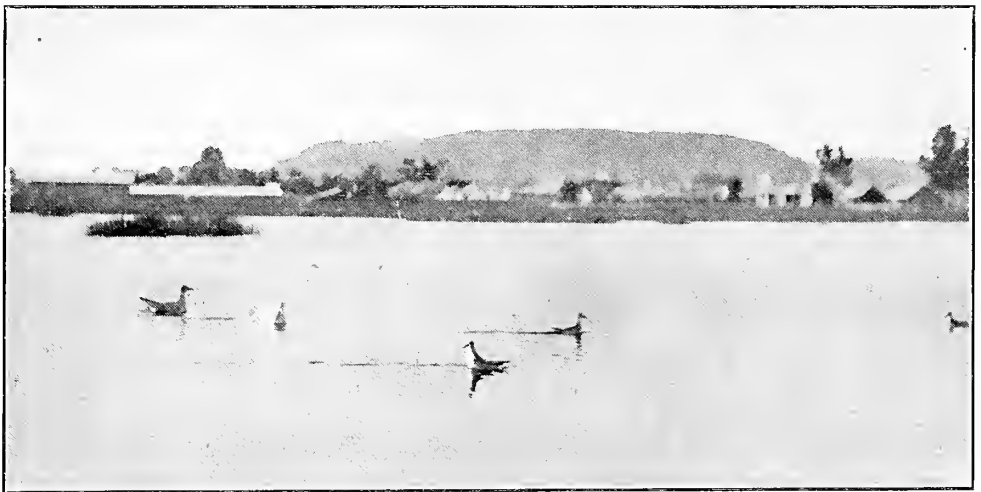


Fig. 4. NORTHERN PHALAROPES NEAR SANTA BARBARA

named species. As an illustration of how much the migration of this species is prolonged, it may be of interest to state that in central Washington Mr. Bowles found young out of the nest by the 12th of May.

Numenius hudsonicus. Hudsonian Curlew. Very abundant spring and fall migrant. Spring: March 2, 1910, to June 2, 1911. Fall: August 2, 1911, to October 15, 1910. These birds undoubtedly occur here in fall earlier and later than the above dates, but lack of time has prevented any personal records. In fact, large flocks were said to be present some two weeks before our August date. Upon their arrival from the north they were very wary, but gradually became less so, as was the case with several other species.

Squatarola squatarola. Black-bellied Plover. Regular migrant in spring and fall, but irregular as to numbers. A few probably winter. Spring: May 2, 1911. Fall: August 29 to November 25, 1911. This species was very common along a certain stretch of beach this fall, and on September 5 a flock of well over a hundred

individuals was seen, which would allow no closer an approach than two hundred yards, even by the most careful stalking. This flock remained a couple of weeks, dwindling slightly in numbers and becoming very much tamer. A male taken September 16 was still in almost complete nuptial plumage. By the first of October they had become so tame that one could readily walk on the open beach to within thirty yards of them.

***Oxyechus vociferus*.** Killdeer. An abundant, noisy, and suspicious resident, serving as an alarm for all the feathered folk within hearing. A flock of these birds spent the nights on the lawn in front of the Potter Hotel during the first part of September, and always maintained an intermittent outcry until past midnight. There are occasionally heavy migrations, one of which occurred on October 10, 1911, when Mr. Bowles counted sixty-seven in a small pool on the mud flat, with many others in the vicinity.

***Ægialitis semipalmata*.** Semipalmated Plover. Regular and fairly common spring and fall migrant. Spring: April 18 to May 16, 1910. Fall: July 12, 1910, to November 1, 1911. These immaculate little gentlemen were usually to be found in pairs and quartets in the vicinity of the sandpipers, but were considerably less inclined towards human company.

***Ægialitis nivosa*.** Snowy Plover. Common resident, but much more abundant in winter than in summer. Appears in large numbers about the middle of December, at which times flocks of fifty or more individuals may be seen. The nesting season is a long one, as heavily incubated eggs were found from April 18 to July 28. They colonize to a very considerable extent, sometimes as many as six or eight pairs nesting within a small area of sandy beach. In the number of sets laid during the season it is probable that these birds are largely governed by the number destroyed. Owing to the small tidal waves that frequently sweep across the beaches, as well as sand drifted by the wind and eggs destroyed by animals, it seems a wonder that the poor creatures are able to bring up any families at all.

***Aphriza virgata*.** Surf-bird. Mr. Howell took one male and one female on September 16, 1911, and Mr. W. Leon Dawson secured another. These were part of a flock of five that was feeding with two marbled Godwits. The remaining birds were remarkably tame and unsuspicious, allowing a close approach. At a distance we mistook them for Black Turnstones, being unable to see their breasts clearly because of the glare of the sun and sand. They seemed too large, however, and for the same reason, as well as because they were too stocky, they did not resemble Knots. This comparison of size is really the only way they can be identified at a distance, except when on the wing.

***Arenaria interpres morinella*.** Ruddy Turnstone. Rare, as a rule, but not uncommon during the fall of 1911. Mr. Howell took the first specimen on August 28, 1911, and about a dozen more were seen in the next three weeks, the largest number noted at one time being a flock of five on September 12. This is unusual for Santa Barbara, as in 1910 none at all were observed, and it seems to be unusual for the rest of the state as well.

***Arenaria melanocephala*.** Black Turnstone. Regular, but never common, fall migrant. None noted in spring. The earliest seen was one on July 29, 1910; the latest a flock of seven on October 15, 1910, in company with fifteen Hudsonian Curlew and two Marbled Godwits. Only two birds were seen in 1911; in fact the Ruddy Turnstones seemed to have almost entirely replaced *melanocephala* this fall.

THROUGH TAHOEAN MOUNTAINS

By MILTON S. RAY

WITH THREE PHOTOS BY OLUF J. HEINEMANN

ON the twenty-fourth of June, 1909, Heinemann and I returned from our trip to Washoe Lake, Nevada, an account of which has appeared in a previous CONDOR. We remained at Bijou until the morning of June 28, at which time we started on a long tramp through the high mountains that surround Lake Valley at the southern end of Lake Tahoe.

Our first objective point was Star Lake, one of the loftiest in the region, having an altitude of about 9,000 feet. Although en route we traversed a region of much



Fig. 5. ICE-COVERED LAKE-OF-THE-WOODS WITH PYRAMID PEAK IN THE BACKGROUND;
PHOTOGRAPHED JULY 1

interest to the ornithologist we failed to record anything particularly noteworthy. The only nest found on the entire day's trip was one of the Western Robin (*Planesticus migratorius propinquus*). This was on the Cold Creek Meadow, at about 7500 feet elevation, and contained four half-grown young. Returning from Star Lake, we spent the night at the Sierra House, on the edge of Lake Valley, and next morning continued on to the summit of the stage road, which we reached at half past three in the afternoon. An excursion to Lake Audrain took up the rest of the day, but failed to furnish any new material for our ornithological note-book.

The following morning (June 30) we started up the precipitous trail that leads over a lofty snow-covered range to Lake of the Woods. A few miles up the

trail Heinemann flushed a Sierra Junco (*Junco hyemalis thurberi*) from its nest, well concealed among weeds and containing two small young and an infertile egg. It was nearly dark when we reached the lake, which we found almost entirely frozen over, while most of the surrounding country was covered with snow. During the chilly night the ice-covered lake and its snowy shores, glittering in the moonlight, presented a landscape that seemed more like one in the dead of winter than on the first of July. In strange contrast to the cold nights, in these altitudes

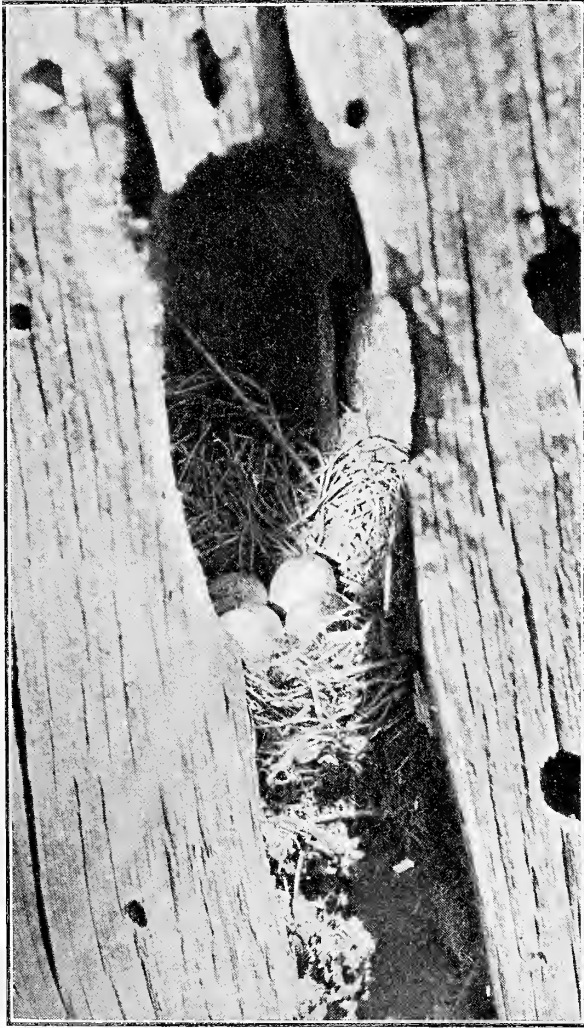


Fig. 6. AN UNUSUAL NESTING SITE OF THE SIERRA JUNCO
AT LAKE-OF-THE-WOODS

often so cold as to cause hardship to one camping out, the days were usually warm and pleasant, and at times extremely hot, which the snow by reflection increased rather than diminished. When the light of the welcome morning sun came filtering through the trees about our camp, we became aware of the presence of a pair of California Pine Grosbeaks (*Pinicola e. californica*) which were watched with that extreme interest which must ever be given to birds whose eggs remain unknown to science. The grosbeaks remained about our camp for some time, feeding on the ground and in the trees. If the birds were nesting I failed to gain any clue of it from their actions, for they flitted from branch to branch, and from tree to tree in a leisurely and unconcerned fashion, finally taking wing across the lake and disappearing in the heavy timber.

After a refreshing swim in the frigid waters of the lake we rambled along its shores for some distance. Near the water's edge where the snow had melted I found beneath an overhanging bush a well concealed nest of the Sierra Junco

with four large young. Farther on, one of the Audubon Warbler (*Dendroica auduboni*) was found eighteen feet up in a hemlock, also with four large young. The nest was made of weed stems, grasses, bark strips and rootlets, and lined with feathers. The limbs had the characteristic droop of trees in high altitudes and made the climb rather difficult. The most interesting nest found about the lake, however, was one of the Sierra Junco placed in a cavity of a fir stump three feet above the

ground, with four eggs well advanced in incubation. Being the first we have ever found in a situation of this kind we desired very much to secure a photograph of it. In this we experienced considerable difficulty and it was only by cutting a strip of wood out from the lower edge of the hole that we succeeded in making the eggs visible on the ground glass. Inspection showed the nest to be made of light-colored grasses and weed stems, and lined with the hair of various wild animals.

After a long journey over the ridge, down through Glen Alpine Gorge, along Fallen Leaf Lake and Lake Tahoe we came into Bijou at midnight. Before we left for home on July 5 a nest of particular interest was found, one of the Pacific Nighthawk (*Chordeiles virginianus hesperis*). This was found by Mr. Charles Young, on July 3, while riding horseback along one of the lower ridges southeast of Bijou. Returning with Mr. Young I found that the two fresh eggs were simply laid on the bare, rocky soil, surrounded by pine needles, the latter, however, not having been brought by the birds. A little pine sapling close by gave the eggs some slight



Fig. 7. EGGS OF THE PACIFIC NIGHTHAWK *in situ*

shelter. The elevation was about 6350 feet. On July 4 Heinemann and I accompanied by Mr. Richard Duttke, who had just arrived, revisited the spot, and the photograph shown herewith was taken.

An interesting addition to the Lake Valley checklist was the Bullock Oriole (*Icterus bullocki*), first noted on the Bijou camp ground on June 7, and several times afterwards. This bird, or these birds, were without doubt stragglers from Carson Valley, Nevada, which lies just over the summit east of Bijou. The fact that this summit is but very little higher than Lake Valley, accounts, I believe, for the presence of the oriole, as well as the many other lower zone birds more or less abundant in Lake Valley, such as the Mourning Dove (*Zenaidura macroura carolinensis*), House Finch (*Carpodacus mexicanus frontalis*), Western Bluebird (*Sialia mexicana occidentalis*) and Western Meadowlark (*Sturnella neglecta*).

A VISIT TO NOOTKA SOUND

By H. S. SWARTH

WITH FOUR PHOTOS BY THE AUTHOR

SOMEWHAT over a hundred years ago, in the latter part of the eighteenth, and early in the nineteenth century, there were many visitors to this port who recorded their observations in print, it being at that time the objective point of the fur traders, while to government expeditions it was the one, almost the only, well known locality that could serve as a base of operations in the exploration of the dangerous and almost unknown northwest coast. Beginning with Captain Cook's "Voyages", there followed in rapid succession the narratives of Meares, Vancouver, Quadra, La Perouse, Cleveland, and others—English, Spanish, French and American, private adventurers and government officials, nearly all of whom gave more or less elaborate descriptive accounts of Nootka Sound, its inhabitants and resources.

With the decline of the fur trade, and the settlement of various international disputes centering about the place, as well as the discovery and exploitation of vast-



Fig. 8. THE VILLAGE OF FRIENDLY COVE, NOOTKA SOUND; AUGUST 6, 1910

ly more promising regions elsewhere on the Pacific, Nootka lost its place in public interest, and, out of the track of civilization, it has for many years been little more than a name, of interest to the historian, but otherwise almost forgotten.

The writer had occasion to visit the place in the summer of 1910, in pursuance of the work of zoological exploration being conducted upon Vancouver Island by the University of California Museum of Vertebrate Zoology. Our party was at this time reduced to two, Mr. E. Despard and myself, and it was with rather mixed feelings that we prepared for this trip, for many were the pessimistic tales we had heard as to physical conditions on the west coast, the drawbacks of canoe travel, and the impossibility of travel by land. Hence, though eagerly anticipating the opportunity of visiting this historic spot, we had some misgivings as to the probable success of the trip, measured by numbers of specimens secured.

A coasting steamer, the *Tees*, making monthly trips from Victoria up the west side of Vancouver Island, was boarded by us at Port Alberni, July 22. In an

air line the two points, Port Alberni and Friendly Cove, are not more than one hundred miles distant, but there are narrow, tortuous channels to be traversed between, and interminable stops at canneries, missions, and mines, so that it was the evening of the second day before we reached our destination, and steamed into Nootka Sound. The Sound is enclosed between Nootka Island and the mainland of Vancouver Island, and to our left, on Nootka Island, lay the little village of Friendly Cove. There is no wharf, and as soon as we had come to anchor a huge canoe put off from the shore, and approached the steamer. This, the property of the store-keeper and capable of holding a score of men, was a war canoe of former days, now reduced to the lowly task of transporting groceries and supplies! We made the acquaintance of Mr. H. L. W. Smith, the store-keeper and the only white inhabitant of the town, who gave us a cordial greeting, assisted us ashore, and did everything possible to make us comfortable.

Three large arms or inlets open from Nootka Sound, the Muchalat Arm extending eastward, Tlupana Arm to the northeast, and the Tahsis Canal, stretching due north. Upon our first arrival at Friendly Cove we remained only one night, and then, taking advantage of the temporary presence in the harbor of a small gasoline launch, had ourselves and outfit transported to the head of the Tahsis Canal, some twenty-five miles distant.

We spent a week at this camp (July 24 to August 2), with but moderate success. Our only object in going such a distance from Friendly Cove was the chance of securing specimens of the larger mammals, naturally driven back from the vicinity of the town, but, whatever the reason, we found big game decidedly more scarce here than at some other points nearer civilization. Wolves and panthers are numerous, though difficult to obtain in summer, and they had apparently driven out the deer, for in a week's time we hardly saw a fresh track of the latter.

On August 2 we returned to Friendly Cove. We secured the services of a trapper whom we found encamped on the Tahsis, and Mr. Smith also came to assist us in the moving. With some difficulty we stowed ourselves and outfit in the two small canoes, Smith and Despard in one, and Leiner (the trapper) and myself in the other. We started early, about 3 A. M., to avoid the wind which blew up the canal every day—thereby encountering swarms of tiny gnats also taking advantage of the calm weather—and alternately paddling and sailing, as occasional light puffs of wind came to our assistance, spent most of the day reaching our destination. Mr. Smith established us in a cabin about a mile from the village, where we found ourselves much more advantageously placed for collecting, and where we remained until our departure from the Sound, August 11.

On the whole Pacific northwest there is no place of greater historical interest than this former center of the fur trade, Nootka Sound, the name of which figured so conspicuously in the accounts of all the early explorations that it came to typify the entire region; but there is little about the place now to suggest its claims of former glory—that the first ship to be built on the Pacific northwest was launched here, and that at this point English and Spanish statesmen met to settle the differences of their respective nations, as to the claims of each upon the countries of the north Pacific. On one of the islands in the bay there is a monument commemorative of the "Nootka Treaty"—a compromise by which both nations withdrew from the port for the time being. From that day to this there has been no white settlement at Friendly Cove.

The earliest detailed description of the Sound is given by Captain Cook, in the history of his third voyage, though the Spaniards had probably been there some years before. Cook was there in March and April, 1778, and it was visited by

Meares, Vancouver, Dixon, and others, whose travels were published in the years immediately following. A later account of the place, and a very full one, is that contained in John Jewitt's Narrative. Jewitt was armourer on the *Boston*, an American ship trading on the northwest coast, which was seized by the Indians while lying in Nootka Sound, and the entire crew massacred, with the exception of Jewitt and one other man. This was in March, 1803, and the two were held as slaves from that time until they escaped in July, 1805. Jewitt kept a journal during his captivity, which was published later, in narrative form, a fascinating tale and a valuable account of the region. There is but little zoology contained in it, except as relating to such animals as the Indians depended on for food or clothing, the sea otter, seals, whales, bear, etc., but the description of the natives and their customs is intensely interesting, while the account of the geography and appearance of the sound, both in general and in detail, is such as to strongly impress a later visitor with the credibility of the narrative. A late edition (1896) of this book has been published, with an introduction and copious notes by Robert Brown. Dr.



Fig. 9. WATER FRONT AT FRIENDLY COVE, NOOTKA SOUND

Brown explored many parts of Vancouver Island in the sixties (among numerous contributions to the zoology, ethnology and geography of the region he published a list of the birds of Vancouver Island, in the *Ibis*, 1868), and he tells here of a visit to friendly Cove in 1863.

With Captain Cook's account of the discovery and exploration of the bay in 1778, Jewitt's narrative of twenty-five years later, and Dr. Brown's careful exposition of conditions sixty years from that time, we have graphic pictures of this interesting spot at widely separated intervals. It is perhaps excusable for a later visitor to tell something of the place as it exists today, for it is remote from the usual track of the "tourist" or "tripper", and such, even should they stray so far, would doubtless see very little to interest them, for the greatest charm of the place, of course, lies in its memories and associations.

The Indian village of Friendly Cove has been where it is since before the coming of the white man, and the advantages of the site are so obvious that it had probably been occupied for ages previous to that time. The town is at the southeastern extremity of Nootka Island on a projecting spit, which is some half mile in length, perhaps a quarter of a mile across, from bay to ocean, quite level, barren

of timber, and covered with grass. At the extremity of the peninsula a string of rocky islets extends at right angles into the sound, giving the shelter that forms the cove, a placid, unruffled bay in almost any weather.

On the sheltered side is a beach a few hundred yards long, extending nearly the length of the town, an ideal landing for canoes, and in sunny weather a delightful place in which to loaf, bathe, and do laundry work, as we observed. This beach, however, is not of hard sand, but of a yielding, coarse gravel, in which one sinks ankle deep at every step, but on this rocky, precipitous coast one is not apt to be critical of such minor details. Above the beach is a short, steep rise of a few yards to the level ground beyond. On the seaward side of the peninsula is another fine stretch of beach, about two miles in length, and of the same general character, though with here and there short stretches affording firm, sandy footing. At the northern end of this beach, where the coast becomes more rocky and broken, is a large lagoon, opening into the sea and flooded by the tides, surrounded by grassy meadows, and with several streams flowing into its upper end. Above the outer beach, as elsewhere in the region except for the limited village site, the forest extends nearly to the high tide mark, impassably dense, dark and forbidding. About half a mile from the village, and only a stone's throw from the beach, is a small, shallow, freshwater lake, several acres in extent. This pond figures several times in Jewitt's narrative, but though he describes it as at that time surrounded by open woods, free from underbrush, we found the forest hereabouts, as elsewhere, choked with undergrowth, while, except in occasional spots, the shores of the lake were overhung and hidden with drooping willows and alders.

The town itself and its inhabitants, we found quite as interesting as the animal life we were there to study. Probably in many respects the straggling rows of cabins present an appearance not greatly unlike the village first seen by Captain Cook, for even in those days the northwestern coast Indians built rather elaborate wooden domiciles. True, many of the houses are now embellished with glass windows, and a few have more or less elaborate bay windows or even front porches, but these details cannot be seen at any distance, and at a close view most of the houses are quite satisfyingly old and weatherbeaten in appearance; while some even of the most pretentious, if approached from the rear, are seen to be there of ancient design and workmanship, contrasting strangely with the more modern and garish "front". It is doubtful if the village is as large as it was when Cook saw it, for he estimated the population at two thousand, and from the number of houses, it appears to be far below that at the present day. I had no other way of forming an estimate, for during the summer most of the able-bodied inhabitants are absent, fishing or working at the canneries, and the village had a very deserted aspect at the time of our visit.

Some distance behind the town, at the edge of the beach, and nearly hidden in the woods, is the Indian burying-ground, the graves embellished with the most extraordinary decorations. The ancient custom of these people to bury with the departed, or to adorn his tomb with, his most cherished possessions, leads now-a-days to most incongruous combinations. Above the various graves were to be seen among other things, a phonograph with several broken records, a sewing machine, an iron bedstead, and a carefully constructed, miniature full-rigged ship, all very much the worse for the weather they had been through.

The Indian tribes of the northwest coast, and the Moochahts, or so called "Nootka Indians", in particular, as one of the most powerful and warlike, have never been considered very trustworthy. The early history of the settlement of the region, aside from the almost incessant warfare carried on between the various

tribes, contains numerous accounts of the murders of traders and other visitors, with here and there some more conspicuous atrocity, such as the capture of the *Boston* or the destruction of the *Tonquin*. Even in recent years there have been occasions when cruelty and injustice, inflicted by reckless white men upon the despised "Siwash", have been followed by prompt and bloody retribution; and today the visitor to some of the more remote villages will be conscious of the black looks and surly demeanor of a portion of the population. It is interesting to note, however, an amiable weakness of these warlike savages, one noted by Jewitt and by Dr. Brown, and even at this late date corroborated by myself. Jewitt remarks on the Indians' fondness for biscuit and molasses, "which they prefer to any kind of food that we can offer them"; and the later writer, commenting upon this, speaks of a prospective Indian uprising being immediately allayed by the opening of a keg of treacle and a box of biscuit. During our stay at Friendly Cove two "potlatches" took place. The first was given by a hunter, who had fortunately secured four seals. These were cut up and boiled in a huge kettle on the beach, around which the village gathered, while the host served the dainties. The second feast made



Fig. 10. OUTER BEACH AT FRIENDLY COVE, NOOTKA SOUND

more of a stir, the generosity of some visiting timber cruisers one evening supplying the whole population with pilot bread and store jam, in return for certain dances, which were most cheerfully executed.

Another curious, and to me unexpected discovery, was that to this day Americans are known to the west coast Indians as "Boston men", Englishmen as "King George men". Changing circumstances have made the Briton's appellation appropriate once more, but it is doubtful whether a Californian or a Texan would recognize the suitability of the above classification!

The permanent white population of Friendly Cove, as indicated above, is limited to Mr. Smith, the store keeper. The whole of the peninsula has been set aside as a reservation, for the use of the Indians, and the store is held by lease. There is a Catholic mission here, a neat little church in carefully kept grounds, and a priest is resident during the winter months, but was away at the time of our visit.

The stay we made at the head of the Tahsis Canal enabled us to see a good deal of the Sound besides the immediate environs of Friendly Cove. The shores of the

canal, like most of the west coast, are rocky and abrupt; at only a few spots along its length are there limited areas of level and fairly open land, in every case occupied by Indian cabins, which were securely closed at this season, for their owners use them but a small portion of the year. "Tashees" is described by Jewitt as the winter home of the Indians, occupied from September until February. Our camp was quite at the head of the canal, in a cabin at an abandoned marble quarry. Three fairly large streams empty here, and there are rather extensive areas of meadow land. These meadows, though fair to the view, are very deceptive, and anything but easy to traverse, the grass waist high, or even shoulder high, and concealing innumerable logs, stumps, and masses of windfall, while the ground is everywhere intersected by a network of little ditches, also concealed. Some Indian cabins placed here are nearly hidden by the surrounding mass of nettles, elder, and salmonberry bushes.

The forests of the west coast must be seen to be appreciated. I had seen, as I supposed, densely forested regions in the eastern and central portions of Vancouver Island, and had also heard tales of west coast conditions, but these had not prepared me altogether for the jungle we entered. Everywhere, over hill and valley, is the dense impenetrable forest, Douglas fir and spruce, mostly, a tree wherever there is a possible foothold for one, and underneath a matted tangle quite impenetrable except along the water courses. Devils club and salmonberry bushes reach out long thorny branches in all directions, while everywhere is the bush we heard so aboundingly vilified by woodsmen and hunters—the ubiquitous salal. On the east side of the island the latter occurs mainly as a small, rather innocuous shrub, easily trodden under foot, but it thrives on the west coast, forming thickets higher than a man's head, and as absolute a barrier as a stone wall. Altogether the forests appeared to me to be somewhat more tangled and impassable than the worst I had seen in southeastern Alaska—more uniformly dense and without the welcome relief of the open "park" country so characteristic of some of the Alaska islands.

At one time there was a trail from the head of the Tahsis Canal across the island to Alert Bay, on the east coast, but we were unable to find any trace of it. The trapper we found encamped here was unaware of its existence, though he had blazed a trail for some miles over what was probably the same route, following up one of the streams.

The naturalist's interest in Nootka Sound is due to the fact that the earliest explorers secured here numerous specimens of animals and plants new to the scientists of the period, and hence serving as types of the several species. The birds known to have been first described from this spot are the Rufous Hummingbird, Red-breasted Sapsucker, Blue-fronted Jay, and Varied Thrush, and it was partly the search for "topotypes", always interesting but frequently elusive and exasperating, that brought me to Nootka.

Our collecting ground at Friendly Cove was of about as varied a nature as could be found in a similar area anywhere in the region. The trail between our cabin and the village passed the whole distance through the woods, while from the rear of the store another trail, a short cut through the forest, led to the outer beach, which could also be reached in a more roundabout way by passing through the village. The outer beach, the lake already referred to, and occasionally the more distant lagoon, were abundant ground to cover in a morning, and were about the best places for birds. We secured three of the four especial desiderata. The sapsucker we did not see, though here and there I ran across the handiwork of the species on the trees. Hummingbirds were not common, though some were seen every day; the adult males had already departed for the south, but specimens of

females and immatures were secured. The jays were exasperatingly scarce, considering that in the vicinity of former camps in other parts of Vancouver Island they were frequently the most abundant species of bird. However, by following up every one seen or heard, we finally secured eight specimens. Of the Varied Thrushes we obtained about as many.

Following is a list of the birds seen at Nootka Sound, both at the Tahsis Canal camp and at Friendly Cove, during the time we were there, July 23 to August 11.



Fig. 11. LOOKING UP THE TAHISIS CANAL, NOOTKA SOUND, FROM AN ISLET
IN THE BAY AT FRIENDLY COVE

Besides these, numbers of gulls, scoters, and phalaropes were seen, but under circumstances not permitting of absolute specific identification.

Gavia immer
Brachyramphus marmoratus
Cephus columba
Mergus americanus
Histrionicus histrionicus
Ardea herodias fannini
Pisobia minutilla
Ereunetes mauri
Actitis macularius
Ægialitis semipalmata
Bonasa umbellus sabini
Columba fasciata
Accipiter velox
Haliaeetus leucocephalus alascanus
Pandion haliaetus carolinensis
Ceryle alcyon caurina
Dryobates villosus harrisi
Colaptes cafer saturator
Cypseloides niger borealis
Selasphorus rufus
Nuttallornis borealis
Empidonax difficilis
Empidonax trailli

Empidonax hammondi
Cyanocitta stelleri
Corvus corax principalis
Corvus brachyrhynchos caurinus
Melospiza melodia rufina
Passerella iliaca fuliginosa
Bombycilla cedrorum
Vermivora celata lutescens
Dendroica aestiva rubiginosa
Dendroica townsendi
Oporornis tolmiei
Wilsonia pusilla pileolata
Cinclus mexicanus unicolor
Nannus hiemalis pacificus
Certhia familiaris occidentalis
Sitta canadensis
Penthestes rufescens
Regulus satrapa olivaceus
Hylocichla ustulata
Hylocichla guttata nanus
Planesticus migratorius caurinus
Ixoreus naevius

SOME BIRDS OF SOUTHWESTERN MONTANA

By ARETAS A. SAUNDERS

WITH ONE MAP

THE REGION covered by this list includes Deer Lodge, Silver Bow, Jefferson, and the southern portion of Powell counties, Montana. It is mountainous in character, extending from about 4100 feet to over 11,000 feet in elevation. The continental divide crosses the region from southwest to northeast. There are two main valleys in the region, the Deer Lodge valley, west of the continental divide, and the Jefferson valley, east of it. These valleys extend from 4100 to 5500 feet in elevation and lie in the Transition Zone. The mountains are principally above 5500 feet and lie in the upper Transition, Canadian and Hudsonian zones.

The valleys consist of open grass lands, the better parts of which are settled and under irrigation, crossed by streams that are lined with thickets of willow and

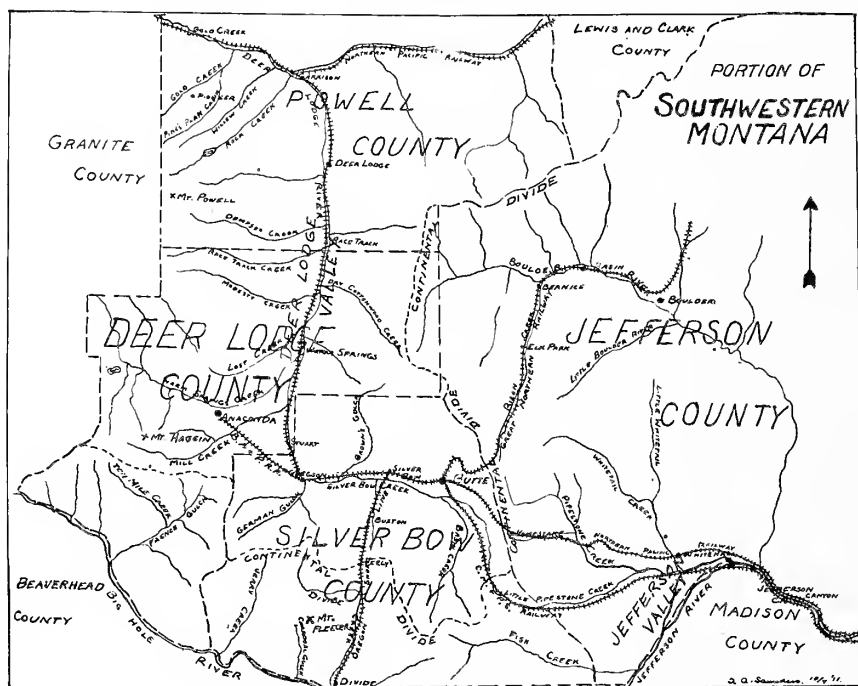


Fig. 12

groves of cottonwood. The mountains form the richest mining district of Montana. They are very rough and rocky in character, and are covered with evergreen forests, consisting principally of lodgepole pine, Douglas fir, Engelmann spruce and alpine fir. A large part of this timber, particularly in the near vicinity of Butte and Anaconda, has been cut over, so that a large amount of the present stand consists of second growth.

The material for this list is obtained almost entirely from my own observations. These covered a period from August, 1909, to June, 1911, with one or two short absences, principally during the winter months. During this period I was assigned to work on the Deerlodge National Forest, and in the course of the work covered the mountainous parts of the region quite thoroughly. Observations in the valleys

were much less thorough and covered shorter periods of time, and for that reason I feel that the list of valley birds is far from complete. Although this is the most thickly settled portion of Montana, there has, to my knowledge, been nothing previously published by other observers on the birds of this region. For a more extended account of the nesting habits of some of the birds listed the reader is referred to *THE CONDOR*, XII, pp. 195-204.

***Colymbus nigricollis californicus*.** Eared Grebe. Migrant. A flock numbering approximately 175 was seen on Rock Creek Lake, Powell County, on September 17, 1910. This flock was composed mostly of young birds, who kept together in a body in the middle of the lake, and appeared to be resting but not feeding. A wounded bird of this species was captured near Butte in late May, 1911, and kept alive for several days in a small tank in a café window in Anaconda.

***Mergus serrator*.** Red-breasted Merganser. Seen near Buxton, Silver Bow County, on May 6, 1910, and near Anaconda, Deer Lodge County, May 1, 1911.

***Anas platyrhynchos*.** Mallard. A common migrant in the valleys. A few remain to breed in suitable localities, and a few also winter wherever warm springs keep the water from freezing. The first spring migrants are usually seen early in April.

***Mareca americana*.** Baldpate. Seen near Buxton May 7, 1910, and near Anaconda on several occasions from April 20 to May 27, 1911.

***Nettion carolinense*.** Green-winged Teal. An abundant migrant and probably also a summer resident. Late in August, 1910, both this and the next species became very abundant throughout the Deer Lodge valley. Residents of the region claimed that they were much more abundant than usual at that season, and believed that it was because of the forest fires that were raging at that time farther north and west in Montana, which had driven them from their breeding grounds earlier than usual. The same was true of the Mallard to a lesser extent, and perhaps of other species of ducks. Migration dates for this species are April 23, 1910, April 23, 1911, and October 30, 1910. It winters rarely, as one was observed near Anaconda January 8, 1911.

***Querquedula discors*.** Blue-winged Teal. Common migrant and probably also summer resident. Migration dates are April 23, 1911, and September 26, 1910.

***Querquedula cyanoptera*.** Cinnamon Teal. I saw a pair of these birds on the Silver Bow marshes, May 21, 1911.

***Spatula clypeata*.** Shoveller. Common migrant. Observed September 25, 1910, and from April 30 to May 14, 1911.

***Clangula clangula americana*.** Golden-eye. A common winter resident in the canyon of the Jefferson River below Whitehall.

***Erismatura jamaicensis*.** Ruddy Duck. An adult female of this species was captured alive near Anaconda in October, 1910, and was kept alive in a small tank in a café window for some time, in company with a Green-winged Teal and a Coot.

Branta canadensis (subspecies?). Canada Goose. A regular migrant. Seen in flight overhead, but seldom alighting in this region and rarely secured by hunters.

***Olor columbianus*.** Whistling Swan. A regular migrant. In my list of the Birds of Gallatin County, Montana (*Auk* XXVIII, pp. 26-49), I recorded this species as the common migrant swan, though with considerable hesitation because there were no definite data to show that this species had ever occurred in Montana. Recently, however, I have strengthened my belief that this is the common migrant species in the state, by examining two specimens. One of these consists of the head and wing of a young bird that was shot by Mr. Rheesis Fransham in the

Gallatin Canyon. The other was the remains of an adult that I found on the shores of an alkaline lake near Chouteau, Teton County, the head and bill of which were uninjured. From the position of the nostril I identified both of these birds as *O. columbianus*. For this reason I have listed *O. columbianus* as the species occurring in this region. I believe that the Trumpeter Swan (*O. buccinator*) occurs, and still breeds in some favored portions of the state, but the proof is lacking and it is certainly not as common as *O. columbianus*.

Ardea herodias herodias. Great Blue Heron. Summer resident along the Jefferson River. Not seen elsewhere.

Grus mexicana. Sandhill Crane. A pair seen in the Deer Lodge valley near Stuart, April 16, 1911.

Porzana carolina. Sora. Noted several times in the Pipestone Basin, Jefferson County, in June, 1910, and in the marshes near Anaconda May 14, 1911.

Fulica americana. Coot. An occasional migrant in the Deer Lodge valley.

Recurvirostra americana. Avocet. An occasional migrant in the Silver Bow marshes in August and September. Local hunters call them "English Curlew".

Gallinago delicata. Wilson Snipe. A common migrant throughout the region, and an occasional summer resident. I found a nest of this species in Pipestone Basin, Jefferson County, on June 12, 1910.

Helodromas solitarius solitarius. Solitary Sandpiper.

Helodromas solitarius cinnamomeus. Western Solitary Sandpiper. This species is a common fall migrant throughout the region in August and September. On August 20, 1910, I secured specimens referable to both subspecies on Gold Creek, Powell County.

Actitis macularius. Spotted Sandpiper. A common summer resident throughout the region. On July 31, 1911, I found young of the year quite abundant along the Hell Gate River, Powell County. One half-grown bird that was unable to fly, got cornered between a steep bank and a small pool of water while running away from me, and, when I followed, took to the water and swam to escape me. The water was but a few inches deep and I waded out to catch it, when it surprised me by diving and swimming under water. It could be plainly seen under water, and used both wings and feet. The plumage while under water was covered with air bubbles which gave it a silvery appearance.

Numenius americanus. Long-billed Curlew. Summer resident of the Lower Jefferson and Deer Lodge valleys. Seen in migration once near Anaconda, May 14, 1911.

Oxyechus vociferus. Killdeer. Common summer resident in the valleys, particularly in the cultivated and irrigated sections. Migration dates are April 8, 1910, and September 13, 1910.

Colinus virginianus virginianus. Bob-white. Introduced locally in the Deer Lodge valley, but not yet common.

Dendragapus obscurus richardsoni. Richardson Grouse. Resident in the mountains. Becoming quite scarce, particularly in the vicinity of Butte.

Canachites franklini. Franklin Grouse. Resident of the higher mountains. I believe that Jefferson County forms the eastern limit of the range of this species in Montana. Experience seems to show that in Montana this species ranges east to the eastern slopes of the continental divide, but is not found in any of the mountain ranges that are entirely east of the divide. A male bird secured in Jefferson County in October, 1909, had the white-tipped tail of this species but lacked the white markings of the upper tail coverts. Dr. L. B. Bishop examined this specimen and considered it a probable hybrid between this species and *C. canadensis*.

Bonasa umbellus togata. Canadian Ruffed Grouse. Common permanent resident throughout the region. To date I have not met *B. u. umbelloides* anywhere in southwestern Montana, but all the birds I have taken or seen closely have been referable to *B. u. togata*. I believe that further investigation will show that *B. u. umbelloides* is a bird of lower elevations, occurring commonly in eastern and northwestern Montana but entirely replaced by *B. u. togata* in southwestern Montana, where even the valleys are mostly above 4500 feet in elevation.

Pedioecetes phasianellus (subspecies?). Sharp-tailed Grouse. Resident of the Jefferson and Deer Lodge valleys. Now quite rare in the latter place. I have taken no specimens and am not certain which subspecies the birds are referable to.

Centrocerus urophasianus Sage-hen. Hunters familiar with this region in the past, state that the Sage-hen was formerly abundant in the sage-brush plains about Silver Bow. It is now probably entirely extinct in the region.

Zenaidura macroura carolinensis. Mourning Dove. A common summer resident of the valleys. Migration dates are May 29, 1910, September 26, 1910, and April 29, 1911. The latter is an exceptionally early date.

Cathartes aura septentrionalis. Turkey Vulture. Seen November 1, 1910, on a high divide between Dry Cottonwood Creek and Brown's Gulch, the boundary line of Deer Lodge and Silver Bow counties. Mr. George Norton, a forest ranger stationed on Dry Cottonwood Creek, states that these birds are permanent residents, and that he believes that a pair breed each year on a high hill back of his station.

Circus hudsonius. Marsh Hawk. Summer resident in the valleys. Breeds commonly in the marshes near Anaconda. Most abundant and noticeable in August and September.

Accipiter velox. Sharp-shinned Hawk. Common summer resident. I found several broods of young with their parents, in thickets of young spruce on Gold Creek, Powell County, in August. Seen once in winter at Silver Bow, January 2, 1911.

Accipiter cooperi. Cooper Hawk. Summer resident throughout the region but rather commoner in migration.

Buteo borealis calurus. Western Red-tail. Common summer resident in the mountains. Migration dates are April 5, 1910, and October 9, 1910.

Buteo swainsoni. Swainson Hawk. Seen but twice, at Silver Bow April 8, 1910, and in the lower Deer Lodge valley August 17, 1910.

Archibuteo ferrugineus. Ferruginous Rough-leg. Quite common about Gold Creek, Powell County, in August, 1910. Seen but once elsewhere, on Pipestone Creek, Jefferson County, October 9, 1910.

Aquila chrysaetos. Golden Eagle. Seen only in Deer Lodge County. Said to be quite common on the Big Hole River in the southwestern part of the county.

Falco mexicanus. Prairie Falcon. Seen quite commonly about Gold Creek, Powell County, in July and August, 1910.

Falco peregrinus anatum. Duck Hawk. Observed in spring migrations in several places in Deer Lodge and Silver Bow counties, on March 23, and April 19 and 20, 1910, and April 23, 1911.

Falco sparverius phalaena. Desert Sparrow Hawk. Common summer resident in the valleys. Migration dates are April 27, 1910, and September 25, 1910.

Pandion haliaetus carolinensis. Osprey. Seen on the Big Hole River, Silver Bow County, May 1 and 6, 1910.

Asio wilsonianus. Long-eared Owl. One secured on Mill Creek, Deer Lodge County, August 27, 1909. Another seen near Homestake, Jefferson County, June 25, 1910. In both cases the birds came about our camp fire in the early evening, apparently attracted by the light.

Asio flammeus. Short-eared Owl. Seen occasionally in the valleys. Evidently breeds in the marshes near Anaconda.

Cryptoglaux acadica acadica. Saw-whet Owl. Probably resident in the mountains throughout the region. Seen or heard in all the counties except Deer Lodge.

Bubo virginianus pallescens. Western Horned Owl. Resident throughout the region but much commoner about Gold Creek, Powell County, than elsewhere.

Nyctea nyctea. Snowy Owl. Occasional winter visitor in the valleys throughout the region.

Glaucidium gnoma gnoma. Pigmy Owl. Seen in German Gulch, Silver Bow County, May 16, 1910.

Ceryle alcyon. Belted Kingfisher. Common summer resident throughout the region.

Dryobates villosus monticola. Rocky Mountain Hairy Woodpecker. Common permanent resident. Broods of young were very common about Gold Creek, Powell County, in August, 1910.

Dryobates pubescens homorus. Batchelder Woodpecker. Permanent resident throughout the region but not common. Seen more frequently at lower elevations.

Picoides arcticus. Arctic Three-toed Woodpecker. An adult female taken on Divide Creek, Silver Bow County, April 20, 1910. Another observed at Elk Park, Jefferson County, September 8, 1910.

Picoides americanus americanus. Three-toed Woodpecker. An adult female secured on Pipestone Creek, Jefferson County, October 6, 1909, was referable to this subspecies.

Picoides americanus dorsalis. Alpine Three-toed Woodpecker. Observed several times in Silver Bow and Jefferson counties but not common. An adult male referable to this subspecies was taken in German Gulch, Silver Bow County, May 25, 1910.

Sphyrapicus varius nuchalis. Red-naped Sapsucker. A pair found nesting near Homestake, Jefferson County, in June, 1910, were the only ones observed.

Sphyrapicus thyroideus. Williamson Sapsucker. Observed on Divide Creek and Charcoal Gulch, Silver Bow County, on April 23 and 30, 1910. A nest containing young was found on Little Pipestone Creek, Jefferson County, July 6, 1910.

Phloeotomus pileatus abieticola. Northern Pileated Woodpecker. Abundant in the yellow pine and fir forests on Gold Creek and Willow Creek, Powell County. Not observed elsewhere in the region.

Asyndesmus lewisi. Lewis Woodpecker. Summer resident at lower elevations throughout the region. In my experience this species is not a bird of the mountains in Montana, but occurs principally below 5,000 feet in the Transition Zone, and is most abundant in cottonwood groves along the larger streams. I found a nest containing young in a dead cottonwood near Garrison, Powell County, July 26, 1910. Broods of young were very abundant about Gold Creek, Powell County, in late July and August. Migration dates are May 1, 1910, and September 21, 1910.

Colaptes auratus luteus. Northern Flicker.

Colaptes cafer collaris. Red-shafted Flicker. Flickers are common summer residents throughout the region. Most of the birds are hybrids or typical of the Red-shafted species, but yellow-shafted birds are not rare. Migration dates are March 29, 1910, and October 13, 1910.

Chordeiles virginianus henryi. Western Nighthawk. Common summer resident throughout the region. Newly hatched young were found on Pikes Peak Creek, Powell County, on August 6, 1910. Migration dates are June 2, 1910, and August 28, 1910.

Chordeiles virginianus sennetti. Sennett Nighthawk. A bird secured on Gold Creek, Powell County, August 26, 1910, was referable to this subspecies.

Selasphorus rufus. Rufous Hummingbird. Summer resident. Migration dates are May 30, 1910, and September 11, 1909, and August 24, 1910.

Stellula calliope. Calliope Hummingbird. An adult male seen on Fish Creek, Silver Bow County, July 13, 1910.

Tyrannus tyrannus. Kingbird. Summer resident of the valleys throughout the region.

Nuttallornis borealis. Olive-sided Flycatcher. Summer resident in the mountains. Migration dates are May 31, 1910, and September 5, 1909.

Myiochanes richardsoni richardsoni. Western Wood Pewee. Summer resident in cottonwood groves in the valleys. Rare above 4,500 feet elevation.

Empidonax hammondi. Hammond Flycatcher. Fairly common summer resident in the mountains of Jefferson and Silver Bow counties. Not seen elsewhere. First noted in spring May 28, 1910.

Empidonax wrighti. Wright Flycatcher. Noted commonly in migration in late May and August.

Otocoris alpestris arcticola. Pallid Horned Lark. Winter resident in the valleys. Not common.

Otocoris alpestris leucolaema. Desert Horned Lark. Common summer resident of the valleys. Migration dates are March 3, 1910, and November 6, 1910.

Pica pica hudsonia. Magpie. Abundant permanent resident throughout the region.

Cyanocitta stelleri annectens. Black-headed Jay. Permanent resident in the mountains. Well distributed throughout the region but not common anywhere.

Perisoreus canadensis capitalis. Rocky Mountain Jay. Permanent resident in the mountains. In my experience this species keeps carefully out of sight and hearing during the spring and early summer months, and is apparently quite rare. Early in August it becomes suddenly abundant, and from then until next spring is one of the commonest and tamest of mountain birds.

Corvus brachyrhynchos hesperis. Western Crow. Summer resident. Migration date March 26, 1910. This species begins nesting in late April or early May, placing the nest ten or fifteen feet above the ground, in a willow or alder bush. It is usually in the most impenetrable part of a thicket, where the nest can be seen from a distance but not approached. It is easy to locate the nest, however, as the birds are usually on guard near it, perched conspicuously in the top of the thicket.

Nucifraga columbiana. Clarke Nutcracker. Common permanent resident in the mountains throughout the region. Broods of young are seen commonly during May and early June.

Molothrus ater ater. Cowbird. Common summer resident of the valleys. A pair secured near Anaconda in May, 1911, were referred by Dr. Bishop to the subspecies which he has recently described as *M. a. dwighti*.

Xanthocephalus xanthocephalus. Yellow-headed Blackbird. Summer resident in the lower Jefferson and Deer Lodge valleys. Seen but once elsewhere in the region, in the Silver Bow marshes, May 21, 1911.

Agelaius phoeniceus fortis. Thick-billed Red-wing. Summer resident in the Silver Bow marshes, and in suitable localities in the Jefferson and Deer Lodge valleys. Migration date April 7, 1910.

Sturnella neglecta. Western Meadowlark. Common summer resident of the valleys. Migration date March 29, 1910.

Euphagus cyanocephalus. Brewer Blackbird. Common summer resident.

Migration dates are April 24, 1910, May 12, 1911, and October 11, 1910.

Hesperiphona vespertina montana. Western Evening Grosbeak. A pair seen on Willow Creek, Powell County, September 14, 1910.

Pinicola enucleator montana. Rocky Mountain Pine Grosbeak. These birds are regular migrants and occasional winter residents in the mountains. I have not yet seen them in summer, but have found them at high elevations in late April and early September.

Carpodacus cassini. Cassin Purple Finch. Summer resident in the mountains, abundant during the migrations. My fall migration dates are from August 25, to September 9, 1910. The spring migrations appear to be very irregular, since I noticed this species from April 22 to May 18 in 1910, and from May 27 to June 10, 1911.

Loxia curvirostra minor. Crossbill. Abundant in the yellow pine forests about Gold Creek, Powell County, in July and August, 1910. Seen elsewhere in the region in but one place, in the mountains near Elk Park, Silver Bow County, September 2 to 8, 1910.

Leucosticte tephrocotis tephrocotis. Gray-crowned Rosy Finch.

Leucosticte tephrocotis littoralis. Hepburn Rosy Finch. Flocks of Rosy Finches, containing birds of both subspecies, though principally *L. t. tephrocotis*, are abundant during the migrations. Migration dates are March 12, 1910, October 29, 1910, and from March 19 to May 8, 1911. *L. t. tephrocotis* was also seen on May 27 in company with the next species, but *L. t. littoralis* was evidently absent this time.

Leucosticte atrata. Black Rosy Finch. On May 27, 1911, after a late spring snow-storm, I found a large flock of Rosy Finches near Anaconda. The flock, which I estimated to contain about 5,000 birds, was composed of about 90% of the gray-crowned species and 10% this species. I secured an adult male of this species which I found to be in advanced breeding condition. Four of the gray-crowned birds, which I could not avoid shooting with the black one, were also in breeding condition, but not nearly so far advanced. I believe that later investigation will show that the Black Rosy Finch breeds in the high mountains west of the Deer Lodge Valley. I did not have opportunity to visit these mountains during the proper season, but once when near the summit of Mount Haggin in early September, 1909, I saw a few birds which, because of the flight and call-note, I took to be Rosy Finches, but could not identify more certainly. I believe that this is the first recorded occurrence of the Black Rosy Finch in Montana.

Acanthis linaria linaria. Redpoll. Common winter resident in the valleys. In 1911 seen up to April 26, in company with Rosy Finches.

Astragalinus tristis pallidus. Western Goldfinch. Summer resident in the valleys. Not common.

Spinus pinus. Pine Siskin. Summer resident in the mountains. Migration dates are May 12, 1910, September 24, 1909, and September 8, 1910. This species also breeds occasionally in the valleys in the Transition Zone. I have seen it in cottonwood groves near Gold Creek, at an elevation of 4,100 feet, in July.

Calcarius lapponicus lapponicus. Lapland Longspur. Seen in the Deer Lodge valley near Race Track, October 30, 1910, and near Anaconda, May 30, 1911.

Poocetes gramineus confinis. Western Vesper Sparrow. Common summer resident in the valleys and mountain meadows. Migration dates are April 27, 1910, April 20, 1911, September 26, 1909, and September 21, 1910.

Passerculus sandwichensis savanna. Savannah Sparrow. Common summer resident. Migration dates are May 6, 1910 and May 12, 1911. During the spring migration in 1911 there was a heavy flight of Savannah Sparrows in the Deer Lodge

valley. From May 14 to 28 they were extremely abundant in grass lands throughout the valley.

***Zonotrichia leucophrys leucophrys*.** White-crowned Sparrow. Common summer resident in the mountains. Migration date May 10, 1911. Breeds commonly on cut-over lands on the lower mountain slopes near Anaconda.

***Zonotrichia leucophrys gambeli*.** Gambel Sparrow. Common migrant in the valleys and lower mountains. Migration dates are May 5-12, 1910, April 29-May 14, 1911, and September 21-October 9, 1910. I have yet to find this subspecies in Montana during the breeding season. I am inclined to think that the A. O. U. *Check-List* is in error in including Montana in the breeding range of this form and not in that of *Z. l. leucophrys*. I have found the latter a common breeding bird of the Canadian and upper Transition zones in all parts of western Montana that I have visited.

***Spizella monticola ochracea*.** Western Tree Sparrow. Common winter resident in the valleys. Migration date October 30, 1910.

***Spizella passerina arizonae*.** Western Chipping Sparrow. Common summer resident in the mountains. Migration dates are May 8, 1910, and May 5, 1911.

***Junco hyemalis connectens*.** Shufeldt Junco.

***Junco hyemalis montanus*.** Montana Junco. These two subspecies are common migrants but are difficult to separate. I have secured birds of both forms in the region however. Migration dates are March 10 to April 5, 1910, September 27 to October 13, 1909, and September 8 to October 14, 1910.

***Junco hyemalis mearnsi*.** Pink-sided Junco. Common summer resident in the mountains. Migration dates are March 23, 1910, April 20, 1911, September 30, 1909, and September 25, 1910.

***Melospiza melodia montana*.** Mountain Song Sparrow. Common summer resident of the valleys and mountains up to 7,000 feet elevation. Migration date March 31, 1910.

***Melospiza lincolni lincolni*.** Lincoln Sparrow. Common summer resident in willow thickets along mountain streams. Migration date June 3, 1910.

***Melospiza georgiana*.** Swamp Sparrow. A single bird of this species was observed closely at Elk Park, Silver Bow County, September 8, 1910. This makes, I believe, the second record of this species in Montana.

***Passerella iliaca schistacea*.** Slate-colored Fox Sparrow. Common summer resident of willow thickets along the lower mountain streams. Migration dates, April 11, 1910, and August 27, 1910. This species is not common in the immediate vicinity of Anaconda, although conditions here seem to be as well suited to it as anywhere else in the region.

***Pipilo maculatus arcticus*.** Arctic Towhee. Seen but once, near Anaconda, April 15, 1911.

***Oreospiza chlorura*.** Green-tailed Towhee. Observed once, on Fish Creek, Silver Bow County, July 21, 1910.

***Zamelodia melanocephala*.** Black-headed Grosbeak. Summer resident of willow thickets in the valleys. Migration dates are May 28, 1911, and August 27, 1910.

***Passerina amoena*.** Lazuli Bunting. Common summer resident of the foothills, frequenting wild-rose thickets below 5,500 feet. Migration dates are May 23, 1910, and August 28, 1910.

***Calamospiza melanocorys*.** Lark Bunting. Two birds of this species were seen in the Deer Lodge valley May 14, 1911.

***Piranga ludoviciana*.** Western Tanager. Common summer resident of fir forests in the mountains. Migration dates are June 5, 1910, May 29, 1911, and

August 27, 1910. This species was very abundant in fall migration on Gold Creek, Powell County, after August 18, 1910.

Petrochelidon lunifrons lunifrons. Cliff Swallow. Common summer resident in the valleys. Migration dates are May 30, 1910, and May 28, 1911.

Hirundo erythrogastra. Barn Swallow. Summer resident in the valleys.

Tachycineta thalassina lepida. Northern Violet-green Swallow. Summer resident. Migration dates May 6, 1910, and May 12, 1911.

Stelgidopteryx serripennis. Rough-winged Swallow. Summer resident. Not common, but seen in the valleys throughout the region. Migration dates May 30, 1910, and May 21, 1911.

Bombycilla garrula. Bohemian Waxwing. Winter resident. Migration dates October 13, 1910, and March 29, 1910.

Bombycilla cedrorum. Cedar Waxwing. Summer resident. I found a nest containing young near Anaconda, August 17, 1910.

Lanius borealis. Northern Shrike. Winter resident in the valleys. Migration date October 23, 1910.

Lanius ludovicianus migrans. Migrant Shrike. On May 14, 1911, I secured a bird of this species, which Dr. Bishop stated was certainly not *L. l. excubitorides* and believed was probably of this subspecies.

Vireosylva olivacea. Red-eyed Vireo. One seen near Anaconda June 3, 1911.

Vireosylva gilva swainsoni. Western Warbling Vireo. Common summer resident. Most abundant in aspen groves in the mountains. Migration dates May 28, 1910, June 3, 1911, and August 27, 1910.

Lanivireo solitarius cassinii. Cassin Vireo. I saw several of these birds on Willow Creek, Powell County, September 12 and 13, 1910.

Vermivora celata (subspecies?). Orange-crowned Warbler. Summer resident in the mountains. More abundant in migrations. Occurs in the breeding season principally in aspen groves. Migration dates May 28, 1910, May 27, 1911, and September 4, 1909.

Dendroica aestiva aestiva. Yellow Warbler. Common summer resident of the valleys. Migration dates May 28, 1910, and May 21, 1911.

Dendroica auduboni auduboni. Audubon Warbler. Summer resident in the mountains. Migration dates May 6, 1910, May 1, 1911, and September 30, 1909.

Seiurus noveboracensis notabilis. Grinnell Water-Thrush. Seen twice in German Gulch, Silver Bow County, May 16, 1910, and on Gold Creek, Powell County, August 20, 1910.

Oporornis tolmiei. Macgillivray Warbler. Summer resident in the foothills up to 5,500 feet.

Geothlypis trichas occidentalis. Western Yellowthroat. Summer resident of the valleys and foothills to about 5,500 feet. Migration dates are May 21, 1911, and September 21, 1910.

Wilsonia pusilla pileolata. Pileolated Warbler. Summer resident of willow thickets in the mountains above 5,500 feet. Occurs in the valleys in migrations. Migration dates are May 28, 1910, May 14, 1911, September 14, 1909, and September 17, 1910.

Setophaga ruticilla. Redstart. Rather rare summer resident. Migration dates May 28, 1910, May 21, 1911, and August 21, 1910.

Anthus rubescens. Pipit. Regular fall migrant in the valleys, usually found in company with Horned Larks. Also very abundant in the spring of 1911, though this is the only year that I have seen it in spring in Montana. Migration dates are September 14 to October 17, 1909, September 11 to October 23, 1910, and April 15 to May 20, 1911.

Cinclus mexicanus unicolor. Dipper. Permanent resident along mountain streams. Not very common in this region, probably because the streams are mostly small and many of them kept continually muddy by placer mining. Though a permanent resident a noticeable migration takes place in March and October, when individuals may be found far from their usual haunts, occasionally in the valleys, and often swimming on the surface of mountain lakes. They winter commonly along Warm Springs Creek, near Anaconda and along the Boulder River, in Jefferson County, places where to my knowledge they are never found in summer.

Oreoscoptes montanus. Sage Thrasher. Seen in the sage-brush near Silver Bow, May 21, 1910.

Dumetella carolinensis. Catbird. Summer resident in the valleys. Migration date May 28, 1911.

Salpinctes obsoletus obsoletus. Rock Wren. Summer resident in suitable localities up to 6,000 feet. Migrations appear to be irregular. In 1910 a single individual was seen on April 13 and the species became common on May 1. In 1911 none were seen until May 20. Fall dates are September 8, 1909, and September 18, 1910. The record for September 8, 1909, is that of a pair of birds seen in slide rock, near the head of Ten-mile Creek, Deer Lodge County, at an elevation of 9,500 feet, more than 3,000 feet higher than the species usually occurs.

Nannus hiemalis pacificus. Western Winter Wren. Seen in German Gulch, Silver Bow County, on May 23 and 24, 1910, and one secured on the latter date. Another seen on Gold Creek, Powell County, August 15, 1910.

Telmatorhytes palustris plesius. Western Marsh Wren. Seen near Gold Creek, Powell County, September 21, 1910, and near Anaconda, April 18, 1911. Specimens were secured on both dates and referred to this subspecies by Dr. Bishop, though one of the Anaconda specimens was not typical but like *T. p. iliacus* in some respects.

Certhia familiaris montana. Rocky Mountain Creeper. Summer resident of spruce forests in the mountains. Migration dates are April 26, 1910, October 14, 1909, and October 9, 1910.

Sitta carolinensis nelsoni. Rocky Mountain Nuthatch. Summer resident in the mountains but not common. Seen most frequently at high elevation in white-bark pine forests in September and October.

Sitta canadensis. Red-breasted Nuthatch. Summer resident in the yellow pine forests of Powell County. A migrant elsewhere in the region. Migration dates are April 18, 1910, and October 2, 1909.

Penthestes atricapillus septentrionalis. Long-tailed Chickadee. Common permanent resident of the willow thickets and cottonwood groves of the valleys.

Penthestes gambeli gambeli. Mountain Chickadee. Common permanent resident of the mountains.

Regulus satrapa olivaceus. Western Golden-crowned Kinglet. Summer resident of spruce forests in the mountains. Most abundant in migrations. According to the *Check-List*, *R. s. satrapa* should be the breeding form in Montana. Perhaps this is the case, for though I have taken several birds referable to *R. s. olivaceus*, they have all been fall migrants and not breeding birds.

Regulus calendula calendula. Ruby-crowned Kinglet. Abundant summer resident of fir forests in the mountains. Migration dates are March 31, 1910 (an unusually early date), April 20, 1911, September 26, 1909, and September 20, 1910. There appear to be two forms of kinglet in this region, differing from each other in habitat and song but not perceptibly in plumage or measurements. One form is only a migrant, arriving a week or two earlier than the other, inhabiting willow

thickets in the valleys and along the mountain streams and singing exactly like eastern birds of this species. The other is the breeding bird of the region. It inhabits the fir forests in the mountains and has a totally different song, as described in the *Auk*, XXVIII, 1911, p. 48. I secured adult males of both forms but could find no difference in plumage or measurements.

***Myadestes townsendi*.** Townsend Solitaire. A common summer resident in the mountains throughout most of the region, particularly in the very rocky country in parts of Jefferson and Silver Bow counties. Migration dates March 15, 1910, October 2, 1909, and October 14, 1910.

***Hylocichla fuscescens salicicola*.** Willow Thrush. Common summer resident in willow thickets of the valleys and lower mountain streams. Migration dates June 5, 1910, June 5, 1911, and August 27, 1910.

***Hylocichla ustulata swainsoni*.** Olive-backed Thrush. Common summer resident of the mountains. Migration dates May 16, 1910, May 14, 1911, and August 25, 1910. A large flight of thrushes of this and the next species was noted in late August on Gold Creek. On one unusually cold day during the flight I found an Olive-back, so numb with cold that I caught it in my hands.

***Hylocichla guttata auduboni*.** Audubon Hermit Thrush. Common summer resident of the mountains. Noticeably much commoner than farther east in Montana. Migration dates are May 25, 1910, May 17, 1911, September 28, 1909, and September 10, 1910.

***Planesticus migratorius propinquus*.** Western Robin. Common summer resident in both valleys and mountains. Also a rare winter resident. Migration dates are March 16, 1910, October 23, 1909, and October 13, 1910.

***Sialia currucoides*.** Mountain Bluebird. Common summer resident. Migration dates, March 10, 1910, and October 7, 1909.

BIRDS OF A MOHAVE DESERT OASIS

By CHESTER LAMB

THE locality of which I am about to write, is known as the Daggett region, formerly famous on account of its Borax mines. It is situated in the Mohave River Valley about forty miles northward from the south-central edge of the Mohave Desert, and one hundred and sixty miles northeast of Los Angeles. The valley here is about ten miles wide; on the north are the Calico Mountains, and on the south the Ord Mountains. These are low ranges entirely bare of vegetation except the ever present creosote bush. The floor of the valley is about two thousand feet above sea level.

In about the center of the valley flows the Mohave River, that is, it flows about three months of the year, from February to May, and the rest of the year it is a burning streak of sand except in a few places where the water comes to the surface and where cottonwoods, willows and mesquites grow, forming veritable oases.

It is at one of these oases that, with a few exceptions, all my observations were made. In fact, of the one hundred and thirty-three species and subspecies noted, only forty-three were seen at all at other points.

The oasis in which my observations were made is nine miles east of the town of

Daggett, San Bernardino County, California. Here the water comes to the surface making two ponds about a half a mile apart, connected by a little stream of flowing water. One of the ponds is about one hundred yards long by fifteen wide, the other about half as large. In some places the water is twelve feet deep. On one side of the pond thick brush, mesquites and cottonwoods come right down to the water's edge, and on the other side it is open and sandy making it especially favorable for shore birds. For probably a half a mile surrounding the water-holes mesquite trees and bushes grow profusely, with a scant mingling of cottonwoods.

Outside of this tree area is the desert, mostly sandy, and in the majority of places covered with small pieces of broken lava. The only vegetation is the grease-wood bushes and other low desert shrubs. No cactus or tree yuccas grow in this vicinity.

With the exception of a little water above Daggett and twelve miles below the oasis, there is none for miles around, so this place becomes indeed a place of rest for the migrants, and an ideal home for the residents.

The climate here is mostly very warm during June, July, August and September, generally 100 degrees or more every day. In the winter time the thermometer sometimes goes as low as twenty-five degrees above zero in the early mornings. There is practically no rainfall. I only saw rain twice that would wet one were he out in it, and that only lasted for two hours.

During the twelve months from August 1, 1910, to August 1, 1911, the writer was located at a mine three miles from the water hole, and eleven hundred and fifty feet up the mountain side from the floor of the valley. The little railroad town of Yermo three miles away produced a couple of birds seen nowhere else. Around the railroad shops is a small oily pond, formed from the waste from the shops, and this sometimes attracted a few birds, often to their sorrow, on account of the crude oil all about.

I desire here to extend to Mr. H. S. Swarth and Mr. J. Grinnell my sincere thanks for their trouble in identifying many of the birds.

For the sake of identification specimens of all birds mentioned in this article were secured, with the following exceptions: Forster Tern, Black Tern, Canada Goose, Wood Ibis, Sandhill Crane, Wilson Phalarope, Turkey Vulture, Marsh Hawk, Prairie Falcon, White-throated Swift, Rufous Hummingbird, Western Chipping Sparrow, San Diego Towhee, Cliff Swallow, Barn Swallow, and California Yellow Warbler. Below is the list of the birds seen.

Colymbus nigricollis californicus. Eared Grebe. Two were recorded, one seen August 28 and one secured September 27.

Podilymbus podiceps. Pied-billed Grebe. These are resident in small numbers the year round and could be seen on nearly every trip to the water hole. Some small young were seen July 30.

Gavia immer. Common Loon. One seen April 10, and one secured April 16. This one was in an extremely emaciated condition.

Larus philadelphia. Bonaparte Gull. But a single bird was seen, secured November 8.

Sterna forsteri. Forster Tern. A single one was seen fishing at the water hole August 13.

Hydrochelidon nigra surinamensis. Black Tern. A single bird was seen hovering over a small oily pond near the railroad shops June 28.

Phalacrocorax auritus albociliatus. Farallon Cormorant. Two were seen during the year of these observations, one August 12, and another seen and secured November 8.

Pelecanus erythrorhynchos. White Pelican. One killed by a local hunter October 1.

Mergus serrator. Red-breasted Merganser. Mergansers were seen several times in company with ducks the first few days of November. Two females taken November 14 proved to be of this species.

Anas platyrhynchos. Mallard. None were seen till November 27, when one lonely female was secured; small flocks were seen during the next thirty days.

Mareca americana. Baldpate. Quite common at times from August to March. On October 23 I secured a young male just about changing into adult plumage, and it is interesting in that it has a white ring nearly around the lower neck.

Nettion carolinense. Green-winged Teal. Quite common at all times during the winter, and a few occasionally dropped in during the summer. Many were secured, they seemingly being the least wild of any of the ducks.

Querquedula cyanoptera. Cinnamon Teal. These birds did not make their appearance till March 15, but after that many large flocks dropped in, and for the next two months there were always a few on the ponds. One single bird was seen July 30.

Spatula clypeata. Shoveller. First seen November 4; then common till January 14, after which they all disappeared. None were seen again till April when two or three small flocks dropped in.

Dafla acuta. Pintail. They, with the Baldpates, were the most abundant duck visiting here. Were common at all times from August to March 15. A few remained throughout the year.

Marila americana. Redhead. None of these birds were noted till February 21, when three males were seen. A pair was secured March 14.

Marila affinis. Lesser Scaup Duck. Like the Redhead this duck's visits were rare. A pair seen November 4, a large flock March 15 and 20, and a single bird April 5.

Marila collaris. Ring-necked Duck. One was secured March 10. Possibly half a dozen were seen, all during the interval between March 1 and 10.

Clangula clangula americana. Golden-eye. A single pair seen November 17. While observing this pair I was lying not fifteen yards from them, concealed in the grass on the bank. I watched them for some time and was much interested in their diving for food. At this place the water was about four feet deep. They would dive and stay under water possibly forty-five seconds, and when coming up I could hear them breath so plainly, it sounded to me as loud as a full grown man after a hard run. The birds remained on the surface, apparently to recover their breath, about half again as long as they stayed under water.

Charitonetta albeola. Buffle-head. Only five individuals were noted, three secured November 9 and two seen December 29. All these were females.

Branta canadensis subsp.? Canada Goose. A pair that I took to be of this species were seen feeding at the margin of the pond. I emerged from the brush not twenty-five yards from them before they flew. Other flocks of geese were heard passing at night.

Plegadis guarauna. White-faced Glossy Ibis. Seen on three occasions; on August 5 a flock of fourteen hung around the water hole all day, September 10 one was seen and again two on September 24.

Mycteria americana. Wood Ibis. One seen June 18. Being familiar with this bird in Mexico there was no mistaking it as it flew low over me.

Botaurus lentiginosus. Bittern. Two were seen, one on January 27 and the other April 5.

***Ixobrychus exilis*.** Least Bittern. One caught August 7 in the oily pond near the railroad shops, its wings covered with crude oil.

***Ardea herodias herodias*.** Great Blue Heron. One could be seen on nearly every trip to the water hole throughout the year.

***Herodias egretta*.** Egret. A flock of three stopped for a few minutes May 2 at the small oily pond near the railroad shops. One, shot by an engineer and given to me, is now in the collection of Mr. A. B. Howell of Pasadena.

***Butorides virescens anthonyi*.** Anthony Green Heron. A few seen at the water hole during August and September and not again till April 5.

***Nycticorax nycticorax naevius*.** Black-crowned Night Heron. Several were seen during August and September, after which they left to re-appear April 5. Even in the town three or four would occasionally roost in the very small cotton-wood trees, a few feet from dwellings.

***Grus mexicana*.** Sandhill Crane. Four were seen in a small grain field February 28. They only stayed one day. A flock of twelve flew overhead March 17 and three April 5. I spent nearly an hour stalking these four birds and was within a few feet of shot gun range when they flew away alarmed by a horse with a bell on its neck running out of the brush. From their large size I took them to be *Grus mexicana*, rather than the smaller *G. canadensis*.

***Porzana carolina*.** Sora. Resident; seen occasionally through the year.

***Fulica americana*.** Coot. Seven or eight always in evidence at the water hole, while at times as many as fifty were present. Breeds.

***Lobipes lobatus*.** Northern Phalarope. Seen only between August 20 and September 10 when they were plentiful. Three secured August 28.

***Steganopus tricolor*.** Wilson Phalarope. A lone individual seen swimming at the margin of the pond, June 10.

***Recurvirostra americana*.** Avocet. Four stayed at the pond during the interval between August 20 and 28.

***Himantopus mexicanus*.** Black-necked Stilt. About a dozen stayed along with the Avocets. A lone bird was seen April 10.

***Gallinago delicata*.** Wilson Snipe. First seen October 22, and then commonly up to, and through, April.

***Macrorhamphus griseus scolopaceus*.** Long-billed Dowitcher. One seen and secured February 24.

***Pisobia minutilla*.** Least Sandpiper. Several observed in August; none seen again till February 28, when they became fairly numerous.

***Totanus melanoleucus*.** Greater Yellow-legs. Nine birds were seen, one each on October 19, February 21 and February 23, a pair March 20, three on April 5 and one on April 21.

***Actitis macularius*.** Spotted Sandpiper. Seen August 5 and October 11. After April 16 a dozen or more could be seen about the water hole every day.

***Oxyechus vociferus*.** Killdeer. Abundant resident, and I might say a great nuisance when hunting other birds.

***Lophortyx gambeli*.** Gambel Quail. Abundant resident. Very hard to secure, as their favorite haunts are the thick mesquites.

***Zenaidura macroura carolinensis*.** Mourning Dove. Abundant everywhere during August and September. After September they left and were not seen again till December 9, when a pair would be seen rarely around the water hole. After May 1 they became abundant again.

***Cathartes aura septentrionalis*.** Turkey Vulture. Occasionally seen circling around up to October 1. After that none were seen again till March 20.

Circus hudsonius. Marsh Hawk. One seen September 12 and another December 13.

Accipiter velox. Sharp-shinned Hawk. Quite common from October to February. None were noted before or after those dates, with the exception of one taken February 28.

Accipiter cooperi. Cooper Hawk. Seen occasionally throughout the year. I was unable to locate any nests.

Buteo borealis calurus. Western Red-tail. Seen frequently around the water hole, and in secluded mountain canyons, where they usually nest on inaccessible cliffs.

Falco mexicanus. Prairie Falcon. Two were seen flying low over Daggett February 20, and one chasing a dove at the water hole September 24.

Falco sparverius phalæna. Desert Sparrow Hawk. Very rare, not more than four seen, and those in the fall up to December 29. All were seen in mesquite trees.

Aluco pratincola. Barn Owl. One secured in the mesquites October 1.

Asio wilsonianus. Long-eared Owl. Only three seen, between October 26 and November 16. I secured one November 15.

Bubo virginianus pallescens. Western Horned Owl. Not uncommon among the cottonwoods throughout the year, and often heard in the mountain canyons at night. An adult female that I collected December 21 had an entire coot in her stomach. This bird and a young male, very much lighter in color, secured January 20, were both identified by Mr. Grinnell as *B. v. pallescens*.

Geococcyx californianus. Roadrunner. Not common; a few seen among the mesquites and around mountain canyons.

Coccyzus americanus occidentalis. California Cuckoo. One collected August 6 and one seen June 7.

Ceryle alcyon. Belted Kingfisher. Two were seen September 12 and one each on April 2, 5 and 10, respectively.

Sphyrapicus varius nuchalis. Red-naped Sapsucker. Two were seen and secured October 22 and November 28. Both were identified by Mr. Swarth.

Asyndesmus lewisi. Lewis Woodpecker. About six birds visited here between October 9 and 16. They were feeding in company with Red-shafted Flickers on the dried-up wild grapes. Two were secured.

Colaptes cafer collaris. Red-shafted Flicker. None were seen till September 12, but after that date they became abundant everywhere, where there were any trees. By the first of May they had all left.

Phalaenoptilus nuttalli nuttalli. Poorwill. Very rare. One flushed from under my horses' feet in a dusty road toward evening October 21. Not seen again till March 12, after which they were occasionally noted. Only once did I see one on the floor of the valley; otherwise about one thousand feet up the hillside. One I secured March 14 has been identified by Mr. Grinnell as of this species.

Chordeiles acutipennis texensis. Texas Nighthawk. Very abundant during August. By the 10th of September they had all left, not to return till April 2, when a few made their appearance. A week later they were abundant, and hundreds could be seen flying around over the water hole. Some days they would commence to fly at 4 P. M. and other days, apparently no different, they would not appear till as late as 6:30. All I collected had the same beetle-like insect in their stomachs, and in enormous quantities.

Aeronautes melanoleucus. White-throated Swift. Four seen March 28 at an elevation of about four thousand feet. After that date they were not uncommon in

the mountains, but I only saw them once around the water hole, June 18, when about a dozen were observed.

Archilochus alexandri. Black-chinned Hummingbird. Not uncommon in August. After that none were seen till March 20, when they began to grow numerous again.

Selasphorus rufus. Rufous Hummingbird. A lone male lit on the clothes line at the mine April 10.

Tyrannus verticalis. Arkansas Kingbird. Very abundant everywhere during August and September, after which they left to reappear April 2. A pair had a nest on the cross pieces of a telegraph pole not thirty feet from the station, and where ten trains passed every day.

Myiarchus cinerascens cinerascens. Ash-throated Flycatcher. Two seen May 21 and a few during the following week, but none thereafter.

Sayornis sayus. Say Phoebe. Common resident everywhere. The favorite nesting site was in deserted mine and prospect holes in the mountains.

Sayornis nigricans. Black Phoebe. One or two could be seen on every trip to the water hole, and occasionally around houses in Yermo.

Empidonax trailli trailli. Traill Flycatcher. Rare. One taken August 17, and no more observed till April 16. After May 15 a few more were noted.

Otocoris alpestris pallida. Sonora Horned Lark. Never seen around the water hole or mesquites, but very abundant around town, the stock yards, open roads and so called dry lakes throughout the year. A specimen secured November 20 was identified by Mr. Swarth as belonging to a pale-colored desert race included under *O. a. pallida* in the A. O. U. *Check-List*.

Corvus corax sinuatus. Raven. Common at all times everywhere, nesting on cliffs in the mountains. They are exceedingly wild, and it was only through cautious hunting with a rifle that I was able to secure any.

Molothrus ater artemisiae. Nevada Cowbird. Several small flocks were seen both at the water hole and in town, but only during the interval between June 1 and 7. One secured June 7 has been identified by Mr. Swarth as *M. a. artemisiae*.

Molothrus ater obscurus. Dwarf Cowbird. These were in company with the foregoing in about equal numbers. One taken June 7 has been identified by Mr. Swarth as belonging to this form.

Xanthocephalus xanthocephalus. Yellow-headed Blackbird. Two were seen August 6 and then no more till April 12, when a small flock hung around the stock corrals for about a week. A lone individual was observed at the water hole July 19.

Agelaius phoeniceus neutralis. San Diego Redwing. Four were seen October 8, and after that date none till April 13, when a few pairs, not more than six, took up their residence in the tules. These birds were extremely wild and hard to approach. Two were secured, one October 8 and one June 18. The former was an immature male of undetermined character, while the last has been identified by Mr. Swarth as *A. p. neutralis*.

Sturnella neglecta. Western Meadowlark. Abundant at all times in the river bottom and about the stock yards.

Icterus bullocki. Bullock Oriole. Quite common during August, but leaving the first week of September. They returned to their summer home April 2.

Euphagus cyanocephalus. Brewer Blackbird. After September they became common around the stock yards in Yermo, though none were seen elsewhere. By May 1 they had all left for their summer homes.

Carpodacus cassinii. Cassin Purple Finch. A pair heard singing early in the

morning of November 8, and after some little difficulty, discovered in the top of a mesquite tree. The one I secured has been identified by Mr. Swarth.

Carpodacus mexicanus frontalis. House Finch. Not common, though more so in the summer. Seen mostly around towns. Breeds.

Astragalinus tristis salicamans. Willow Goldfinch. These and the following seen on most trips to the water hole, in small flocks of from six to a dozen birds. One taken January 7.

Astragalinus psaltria hesperophilus. Green-backed Goldfinch. These seemed less abundant than the foregoing. One taken December 15.

Passer domesticus. English Sparrow. Very common around the towns of Yermo, Daggett and Barstow.

Passerculus sandwichensis alaudinus. Western Savannah Sparrow. First observed November 4 in the river bottom. After that date an occasional small band would be seen up to April 10.

Chondestes grammacus strigatus. Western Lark Sparrow. Five were seen at Barstow August 5, and a lone bird was seen and secured near the water hole July 19.

Zonotrichia leucophrys gambeli. Intermediate Sparrow. These birds first appeared here September 15; and a week later they were abundant everywhere, except in the mountains where none were seen. They became scarce by April 10, and by the 23rd they were all gone.

Zonotrichia coronata. Golden-crowned Sparrow. Only one seen, secured near my house on the mountain side October 14.

Spizella passerina arizonae. Western Chipping Sparrow. A flock of these birds frequented my door steps, first appearing September 27 and staying till October 3.

Junco hyemalis hyemalis. Slate-colored Junco. Were present in small numbers usually in company with the Sierra Junco. A small flock made its home around the mine barn, from September 10, on which date they were first seen, to February 15, after which they disappeared from there as well as from around the river bottom. Two secured January 25 and September 22 have been identified by Mr. Swarth as belonging to this race.

Junco hyemalis thurberi. Sierra Junco. From September 10 to January 1 they were very abundant. A few seen during January, and a lone bird on May 2.

Amphispiza nevadensis nevadensis. Sage Sparrow. Not infrequently met with on the open desert, being most numerous during November and December. One secured November 16 has been identified by Mr. Swarth.

Melospiza melodia montana. Mountain Song Sparrow. Very abundant around the river bed from October 1 to April 1. The last bird that I secured was on April 16, when all song sparrows were quite scarce. I cannot say upon what date they arrived as I took no song sparrows in August and September. Single birds secured on October 19, November 28, December 15, January 3, February 15 and April 16, respectively, have been identified by Mr. Swarth as *M. m. montana*.

Melospiza melodia cooperi. San Diego Song Sparrow. Of the series of twenty-five song sparrows secured from October 1 to April 16, only four proved to be of this form; during May, June and July they seemed to be the only song sparrow present, though not at all numerous. Birds secured, one each on January 3, 4 and 27 and July 10, have been identified by Mr. Swarth as *M. m. cooperi*.

Melospiza lincolni lincolni. Lincoln Sparrow. Not more than eight birds were seen altogether, four being taken, one each December 21 and 23, February 15 and April 13.

Passerella iliaca megarhyncha. Thick-billed Fox Sparrow. One taken in the town of Yermo, May 28. Identified by Mr. Swarth.

Passerella iliaca schistacea. Slate-colored Fox Sparrow. One flew in the well house at the mine September 22. Identified by Mr. Swarth.

Pipilo maculatus megalonyx. Spurred Towhee. A pair were seen at the water hole September 24. I was unable to secure them but they were probably of this subspecies.

Zamelodia melanocephala. Black-headed Grosbeak. A few birds seen during August. They made their spring appearance April 13.

Guiraca caerulea lazula. Western Blue Grosbeak. These birds stayed longer and appeared later than the Black-headed. By October 1 they had all gone, not to re-appear till May 21.

Passerina amoena. Lazuli Bunting. Very rare. Probably a dozen birds seen in August. In the spring they did not arrive until May 14.

Progne subis hesperia. Western Martin. A pair was seen perched on the top of a dead cottonwood tree August 28, and one was secured.

Petrochelidon lunifrons lunifrons. Cliff Swallow. Abundant in September, less so in October, after which they all left. They re-appeared again about the first week of May.

Hirundo erythrogastra. Barn Swallow. Many seen flying around the water hole in company with Tree Swallows during August and up to September 15.

Iridoprocne bicolor. Tree Swallow. Very abundant during August and September. The first birds arrived in the spring February 17, then gradually became numerous again.

Stelgidopteryx serripennis. Rough-winged Swallow. Many seen around the water hole after June 1; several that I secured were juveniles.

Bombycilla garrula. Bohemian Waxwing. One seen and secured December 13, as recorded in the CONDOR, XIII, 1911, page 34.

Phainopepla nitens. Phainopepla. Not common. Seen throughout the year, though none were observed in their usual haunts from September to November 18.

Lanius ludovicianus excubitorides. White-rumped Shrike. Very rare, an occasional one seen throughout the year either at the water hole, on the open desert or the mountain side. One secured August 14, compared with *L. l. gambeli*, is noticeably paler colored.

Vireosylva gilva swainsoni. Western Warbling Vireo. One seen and secured, September 15.

Dendroica aestiva brewsteri. California Yellow Warbler. Seen twice, August 14 and May 2.

Dendroica auduboni auduboni. Audubon Warbler. Abundant in the timber from September 10 to April 20.

Geothlypis trichas occidentalis. Western Yellow-throat. Yellow-throats were quite rare residents. One taken January 17 has been identified by Mr. Swarth as of this form.

Icteria virens longicauda. Long-tailed Chat. One seen May 3 and one secured May 21. Not uncommon in June and July.

Wilsonia pusilla pileolata. Pileolated Warbler. Only seen on two occasions, two on April 16 and several on May 3. One secured April 16 has been identified by Mr. Grinnell as *W. p. pileolata*.

Anthus rubescens. Pipit. First seen at the river bottom November 3. After that date they became very abundant up to April 15, after which none were noticed.

Mimus polyglottos leucopterus. Western Mockingbird. Two individuals seen during August and then none again till December 20. After that date they became plentiful around the water hole and frequently one would visit the mine.

Toxostoma lecontei lecontei. Leconte Thrasher. Very rare, only six birds being seen throughout the year. With the exception of one all were on the open desert among the greasewood. A pair were secured February 28.

Salpinctes obsoletus obsoletus. Rock Wren. Common on the hillsides and mountains, and sometimes met with on the open desert.

Catherpes mexicanus conspersus. Canyon Wren. Rare; only a few seen on the rocky mountain side during the winter. One taken October 16 has been identified by Mr. Swarth.

Troglodytes aedon parkmani. Western House Wren. One seen and secured September 16.

Telmatodytes palustris paludicola. Tule Wren. Very common among the weeds by the water hole throughout the year. One taken October 18 has been identified by Mr. Swarth as belonging to this subspecies.

Telmatodytes palustris plesius. Western Marsh Wren. Several seen, but not nearly as common as the foregoing and not observed till December 25. One secured on that date has been identified by Mr. Swarth as *T. p. plesius*.

Certhia familiaris zelotes. Sierra Creeper. But one seen, secured December 7. Identified by Mr. Swarth.

Auriparus flaviceps flaviceps. Verdin. Very common in the mesquites throughout the year. I found complete sets of eggs by March 20. These birds use their nests the year round to roost in at night, and I have frequently captured the birds in them in the day time.

Regulus calendula calendula. Ruby-crowned Kinglet. First seen October 22, and a week later were common among the mesquites and cottonwoods. By April 10 they had all left.

Poliophtila caerulea obscura. Western Gnatcatcher. Common everywhere at all times.

Poliophtila plumbea. Plumbeous Gnatcatcher. Rare. Only four birds were seen, all in October. These kept close to the mesquite trees and did not go out upon the open desert as did *P. c. obscura*.

Myadestes townsendi. Townsend Solitaire. One seen and secured January 3.

Hylocichla guttata nanus. Dwarf Hermit Thrush. But two were seen November 15 and January 7. One secured November 15 has been identified by Mr. Swarth.

Planesticus migratorius propinquus. Western Robin. A single bird was secured October 13, but it was not till November 8 that I saw any more. After that date they were very abundant at the water hole, feeding on mistletoe berries, as do so many of the birds here. By the first of May they had all left for their summer home.

Ixoreus naevius meruloides. Northern Varied Thrush. One seen and secured November 28. Identified by Mr. Swarth.

Sialia mexicana occidentalis. Western Bluebird. First seen November 14, after which date they became abundant. None were seen after March.

Sialia currucoides. Mountain Bluebird. Only four were seen, one December 29, two February 20 and one March 5.

FROM FIELD AND STUDY

Bobolink Again in Idaho.—Referring again to *Dolichonyx oryzivorus* in Idaho (see CONDOR, 1911, for previous note): On August last, less than a quarter of a mile from where the bird was noted in 1909, I found a flock of about twenty-five, in the autumn plumage of course, nevertheless unmistakably Bobolinks. One taken proved to be an adult male. This is my second record for the species in Idaho. Apparently it has now gained a firm foothold in this valley. All conditions seem to favor a rapid increase in numbers.—L. E. WYMAN.

Rare Takes for San Mateo County, California.—For the past few years I have been steadily adding to my list of county birds, and at this time think it of sufficient importance to record some of the rarer ones, and also one taken in another part of the State.

Ancient Murrelet (*Synthliboramphus antiquus*). One immature female in juvenal plumage taken off San Bruno in San Francisco Bay on December 23, 1907.

Pacific Fulmar (*Fulmarus glacialis glupischa*). Female taken in the bay near Redwood City, February 4, 1906; others seen at different times.

Ashy Petrel (*Oceanodroma homochroa*). Female taken November 9, 1909, on the bay near Redwood City. Another reported on November 16, 1911, near Redwood City.

Ring-necked Duck (*Aythya collaris*). Numbers of these ducks are taken almost every fall on the bay, and several are in my collection; also a fine male in breeding plumage taken from a flock of a dozen on a small lake near Menlo Park, February 16, 1910.

Barrow Golden-eye (*Clangula islandica*). After examining hundreds of specimens of golden-eyes for many years past, I at last succeeded in securing a young male, in immature plumage on November 19, 1908, and a female on November 28, 1910; all others were of the common, or American Golden-eye, which are quite plentiful during the fall migration on the Redwood City salt marshes.

Old-squaw (*Harelda hyemalis*). Two specimens, female, on December 17, 1909, and male on January 25, 1910, on the bay near Redwood City. Others have been seen the past two winters.

American Scoter (*Oidemia americana*). A single female taken on the bay near Redwood City Creek on January 17, 1909; probably the only record for inland waters in California.

Prairie Falcon (*Falco mexicanus*). One taken on February 14, 1902, and another on October 15, 1907. These are the only specimens I have ever noticed in the county.

Brewer Sparrow (*Spizella breweri*). Two specimens collected in city limits, one taken on December 7, 1893, the other on February 17, 1897. The sex of both is in doubt owing to shot holes. No others of this species have been seen.

California Least Vireo (*Vireo belli pusillus*). Only one record for the county, a male taken on April 5, 1905, in city limits.

Emperor Goose (*Philacte canagica*). One specimen, a female, taken at Rio Vista, California, November 3, 1910. This is as far as I know the fourth record from the State. The bird was with a large flock of American White-fronted Geese and was in very poor flesh. Mr. Charles H. Smith of the above city kindly presented the specimen to the writer, saying that he had never killed or even heard of such a bird being seen in that locality before, where thousands of geese are taken yearly.—CHASE LITTLEJOHN.

Wood Ibis near Long Beach.—On July 2, 1911, I collected a specimen of *Mycteria americana* at Dominguez Station, near Long Beach, California. The bird was feeding in a mud slough in a very amusing manner. It was standing almost knee deep in the muddy water, and would insert its bill almost up to the eyes and then, standing on one foot, would seem to be stirring up the water with the other foot. The farmers in the vicinity of the place where this specimen was taken said that from one to half a dozen had visited this slough almost every day for a month. Other members of the Cooper Club report having seen Wood Ibises, about the time of the taking of my specimen, among various sloughs along the coast of Los Angeles County.—J. E. LAW.

Another Eastern Fox Sparrow in Southern California.—On November 11, 1911, while collecting in the Los Angeles River bottom near Burbank, Los Angeles County, I saw and shot a female Fox Sparrow (*Passerella iliaca iliaca*) which is indistinguishable from birds in my collection that were taken in the eastern states. This is the seventh specimen of the species recorded from the State, and the second from the above locality.—ALFRED B. HOWELL.

The American Merganser at Lake Tahoe.—One of the prettiest sights in my experience came very unexpectedly while I was standing on a board walk in front of a little cabin at the edge

of Lake Tahoe about 5 p. m. on June 24, 1911. This was in a little cove occupied by fishermen at the source of the Truckee River between Tahoe Tavern and Tahoe City. At this particular spot the walk stood out over the water and on either side the willow marsh extended out to a like distance.

Suddenly we heard a coarse masculine "quack" almost under our feet and a beautiful adult American Merganser, with glossy auburn head and crest, glided out, followed by eighteen or twenty babies not over a week old. The water was as smooth as glass, and this pretty procession paid no attention to us as it passed the length of the short walk within five feet of where we stood. The little ones kept close in the wake of the mother, moving quickly here and there, never quiet a minute, and changing positions so rapidly that it was impossible to accurately count them. The mother's commanding "quack" seemed to keep the little ones in perfect obedience and they behaved like a company of little soldiers. They were a pretty golden brown, each with a conspicuous white spot on each wing. Evidently they were after their supper and all working hard. They passed quickly on, then tacked back a little farther out, then gradually worked across the cove and into the willows a few hundred yards along the shore.

Several times the mother raised almost out of the water and dashed quickly along for fifty feet or so, every chick rising and skipping after her, flapping their little wings and paddling the surface of the water with their little feet. After three of these spurts the youngsters seemed to tire, and one climbed on its mother's back; and soon several had done so, and rode securely there as long as they were in sight. Fortunately we had a good pair of Zeiss glasses and were able to watch every movement till they disappeared into the willows.

The fisherwives said this little family had been about the cove for two or three days and there were twenty chicks, but I could only be sure that there were eighteen. Did anyone ever see a more beautiful picture than this, with beautiful Lake Tahoe and its snow-topped mountains beyond as a background, and the stately pine forests all about down to the very water's edge?

The fisherwives said the hens stole the youngsters from each other, and sometimes had more than at others, but these were undoubtedly different families with varying numbers.

On the 28th we skirted the west shore, north some six miles, in search of other mergansers. Several adults were seen, twice in pairs, and on the lake side of "The Island" a female with six chicks, slightly larger than the "18" family, was observed and chased in a launch in an effort to get pictures. Time and again all rose on the surface and dashed along for a short spurt, fifty feet or so. The female would not leave them, nor did any show any tendency to dive.—J. E. LAW.

Concerning Nesting Sites of the California Jay.—In recent conversation with two experienced oologists, the nesting sites of *Aphelocoma c. californica* were discussed, and statements were made that observations upon their nest building habits were difficult in that birds of this common species were seldom seen carrying nesting material. An experience of the writer's, covering both subjects, was related, and the discussion that followed led to this paper as perhaps being worth while.

An abundant resident of Marin County, California, our nesting notes upon this species established the following sites for the eighty-three nests observed: oaks 69; bay 3; wild coffee 4; elder 2; madrona 1; gooseberry 1; toxon 1; poison oak 2. And yet in Belvedere, Marin County, where live-oaks are most plentiful, a nest has been built almost yearly, for seven or eight years, in a clematis which climbs up the side of our summer home. The nest has usually been placed within reach of, as well as observation from, the window of a constantly occupied bed room, a window opening out and frequently opened and closed daily.

A lucky observation on May 26, 1909, caught one of the nest builders with an oak twig held crosswise in its bill, and about to dart to the nest from the limb of a live-oak a few feet distant from, but slightly higher than, the nesting site in the clematis. The sudden appearance in the window of the observer caused the bird to resume its perching position, but more through curiosity than alarm, judging from the many "jay bobbings" then indulged in. After numerous interchanges of such morning salutations between the observed and the observer, the former deliberately put down its head and, bringing the twig in proper contact with the perch, placed one foot over the twig and thus securely held it in its perching grasp. The renewed bobbings were then accompanied by the bird's familiar and prolonged scolding note or squawk, in its rising crescendo.

This play was repeated a number of times, the observer retiring from the open window and reappearing at the critical moment of contemplated flight to the nest, already well along in construction.

To the foregoing notes upon nesting sites in Marin County, may be added the following which came under our observation in San Benito County, California: oaks 4; elder 1; willow 7; honeysuckle 2; sage 2; chaparral 1; greasewood (black willow) 1.—JOHN W. MAILLIARD.

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EDITORIAL NOTES AND NEWS

In this issue is printed the new Constitution of the Cooper Ornithological Club. This is in the form finally adopted by the Southern Division, Sept. 28, 1911, and by the Northern Division, November 18, 1911.

It is admittedly regrettable that this number of our magazine is so far behind its normal date of publication. But the present editors have always acted on the principle that care in make-up is far more essential than fixed date of appearance. An unfortunate accident in the printing office has made the hazard in this particular case one requiring unusual precautions.

On November 6, 1911, the appointment of Mr. F. S. Daggett as Director of the Museum of History, Science and Art, at Los Angeles, was confirmed by the Board of Governors. The building is finished, and Mr. Daggett is now pushing as rapidly as possible the preparation and installation of the material for exhibition. Comprehensive plans have been made regarding the development of all three branches of the Museum, but readers of THE CONDOR will be more particularly interested in the details of the zoological department.

The large collection of fossils amassed by the Southern California Academy of Science at the Rancho La Brea is all to be in the building, and restorations of most of the mammals and many of the birds will be made, forming an exhibition probably unique. The material includes more or less complete skeletons of elephant, mastodon,

giant ground sloth, bison, llama, camel, saber-toothed tiger, lion, wolf, condor, eagle, etc. The activities of the museum will be first directed largely along exhibitional lines, always with the view of having the exhibits as educational as possible. In building up a zoological collection it will be confined principally to west coast forms, in fact mostly to Southern California and the contiguous country to the south. Habitat groups of native mammals and birds will be installed as rapidly as the material can be collected and prepared.

Mr. Daggett's personal collections will be deposited in the Museum, amounting to 8000 birds, 3000 species of Coleoptera, and thirty-six large drawers of butterflies, as well as his ornithological library, comprising some 1800 volumes and about as many pamphlets. Other loan collections, and some gifts are promised, including a library of about 2000 volumes owned by the Academy of Sciences, and an extensive herbarium to be installed by Dr. A. Davidson.

The Museum's Board of Governors includes one member from the Southern Division of the Cooper Club, Mr. Howard Robertson. The Club should know that the successful inauguration of this Museum is in a great measure due to his energy and industry, and must accord Mr. Robertson credit for all time as one of the guiding spirits who made possible the founding of the institution. With two Cooper Club members so actively interested in the Museum, Mr. Daggett as its executive head, and Mr. Robertson as Secretary of the Board of Governors, we can feel assured as to its future development and expansion. The Club has also cause for congratulation in the fact that this new institution, bound to develop into one of great importance and usefulness, is in a measure a direct outgrowth of the activities of the Cooper Club.

PUBLICATIONS REVIEWED

MILLER ON FOSSIL BIRDS.—California is the richest state in the union in point of living species represented within its borders, barring possibly Texas. It now seems that an added distinction is accruing, namely, that in number of fossil forms brought to light, this state has assumed foremost position. The Department of Paleontology of the University of California has come into possession of a large amount of material from the now famous Rancho la Brea asphalt deposits near Los Angeles; and previously extensive and fruitful searches had been conducted in certain cave deposits in the northern portion of the state. Upon the avian remains contained in the material from these two sources Loye Holmes Miller has prosecuted diligent research. It is our privilege to refer to two more papers from his pen announcing various new discoveries. (See CONDOR XIII, 1911, p. 79).

In an article entitled "A Series of Eagle Tarsi from the Pleistocene of Rancho la Brea" (Univ. Calif. Publ. Geol. VI, October 9, 1911, pp. 305-316), Miller describes and figures three new raptorial birds: *Morphnus woodwardi*; *Geranoaetus grinnelli* and *G. fragilis*. As in previous cases, the nearest related species are now restricted to South America. Comparison is drawn by the author not only with the nearest related forms, but with the Golden and Bald Eagles. It seems that of the fossil species the one bone most often preserved is the tarso-metatarsus. Miller points out that "this bone is so characteristic a part of the avian skeleton and reflects so readily the characters of the species" that in dealing with adequate material no hesitation is experienced in making specific determinations from this member alone.

The second paper bears the caption "Avifauna of the Pleistocene Cave Deposits of California" (Univ. Calif. Publ. Geol. VI, October 28, 1911, pp. 385-400). Thirty forms are listed, a few of these are not yet identified beyond the genus, the majority are apparently identical with existing species, while three are newly named in this paper. The latter are: a black vulture (*Catharista shastensis*), a condor (*Gymnogyps amplus*), and a great horned owl (*Bubo sinclairi*). Associated together in this ancient avifauna, as preserved in Potter Creek and Samuel caves, Shasta County, and Hawver Cave in Eldorado County, were, besides the species just named, a long-legged eagle, the turkey vulture, the sharp-shinned, red-tailed, Swainson and rough-legged hawks, the pinyon, elf, and short-eared owls, ruffed and sooty grouses, valley and mountain quails, a species of turkey, the crow, Steller jay and Brewer blackbird. It is of particular note that the little elf owl should have occurred in the Shasta region, when it is now restricted to a range far to the southward.

Miller finds that in these cave deposits, the remains of ground-dwelling birds predominate. This suggests "that their bodies were either brought in as the prey of predatory forms or else swept in by currents of surface drainage." Owls and vultures, of course, commonly resort to caverns as places of abode, and the bodies of those dying could have been carried into the more remote recesses by predaceous mammals or currents of water.—J. GRINNELL.

WOODPECKERS IN RELATION TO TREES AND WOOD PRODUCTS. By W. L. MCATEE (=U. S. Dept. Agric., Div. Biol. Surv., Bull. no. 32, 99 pages, 12 pls., 44 figs. in text; Sept. 26, 1911).

This publication of the Biological Survey, following closely after the one on the "Food of the Woodpeckers of the United States" fur-

nishes considerable evidence as to the damage to trees, lumber, etc., by members of this group of birds. The paper is divided into two parts, "damage by woodpeckers in general," and "damage by sapsuckers", the latter being by far the most comprehensive. Under the first head, the kinds of injury to trees caused by woodpeckers are treated—holes made in digging out insects, excavation of nest and shelter cavities, attacks of tree enemies aided by woodpeckers, and damage to wooden posts and structures.

This section of the paper closes with a few paragraphs on the prevention of damage by woodpeckers, attention being called to the value of experiment along this line and to the use of nesting boxes and of tin as a protective covering when practicable. The first suggestion is an important one. Not long ago the statement was made to the reviewer that the placing of a newspaper in a hole in a building drilled by a flicker was sufficient to drive the bird away. The statement has also been made that the hanging of a looking glass on a string from the gable of a building keeps flickers away. Whether these statements be true or not they show what two men have found out, to their own satisfaction, by experimentation. Experiments like these need to be tried out; for who can tell but that some simple thing may prevent some or most of the damage done by woodpeckers.

The greater part of the paper on "damage by sapsuckers," is given over to an enumeration of the trees and shrubs attacked by the different kinds of sapsuckers. The most interesting part deals with the effect of sapsucker work on the external appearance of trees, on the health of trees, and on lumber and finished wood products. From the evidence brought forward by a separate enumeration of the kinds of shrubs and trees attacked, and the type of damage done, it is evident that the sapsucker damages much valuable timber so that it is rendered unfit for use. In conclusion this statement is made: "However, if only one percent of the number of trees attacked (ten percent of the whole number) is discarded, the annual loss for the whole United States is more than a million and a quarter dollars." A large number of illustrations furnish indisputable evidence as to the effects of sapsuckers.

The paper is particularly interesting on account of the fact that it is one of the first of the publications of the Biological Survey to bring forth so large an amount of evidence *against* a bird. Heretofore there has been a tendency to minimize the harm as compared with the good, even with such birds as the linnet and blue jay. Mr. McAtee appears to have set forth evidence impartially.

One point not emphasized seems worthy

of strong emphasis in such a paper; namely, the fact that locality and numbers of individuals have a great deal to do with the amount of damage done. In some parts of the United States sapsuckers are of such rare occurrence that the placing of the birds on the blacklist would be foolish indeed. As the study of economic ornithology progresses it will be seen more and more clearly that whereas a bird may be a pest in certain localities due to certain local conditions, yet in other localities the same bird may be a decided benefit or at least of neutral value. There is no intention of defending sapsuckers as a class, for we agree with Mr. McAtee that the sapsucker 'must be included in the class of injurious species, the destruction of which when caught redhanded is justifiable'; but 'circumstances alter cases' and this view is important.

The bibliography is a welcome addition in this publication of the Biological Survey. To the average farmer this means nothing, but to the scientific student it adds greatly to the value of the paper. The incorporation of reliable data by other workers in the field adds much to this type of publication. It is a pleasure to note also the elaborate set of plates and figures. To the men for whom these publications are intended such illustrations mean much more than the printed data.—H. C. BRYANT.

A MONOGRAPH OF THE BROAD-WINGED HAWK (*Buteo platypterus*) by FRANK L. BURNS [=The Wilson Bulletin XXIII, 1911, nos. 3 and 4, pp. 143-320, 10 pls.].

The scope of this work is perhaps best indicated by a recapitulation of the different heads under which the subject is treated, which, in order of succession, are as follows: Diagnosis of genus, distinguishing specific characters, description and measurements, synonymy, geographical distribution, flight, food, voice, enemies, disposition in the presence of other birds, disposition in the presence of man, disposition in captivity, migration, station, mating, nidification, incubation, young, molt and renewal, bibliography.

The assemblage of the mass of data here presented is evidently the result of a large amount of painstaking labor. Besides being a compilation of previously published literature on the subject, the paper contains much new and unpublished material, the many manuscript records in the details regarding distribution, and the careful accounts of the molt, actions and habits of young birds raised in captivity, being particularly noticeable. The illustrations are excellent and well chosen, figuring young birds, immatures, and adults, eggs and nests.

It is, therefore, an important contribution to our knowledge of the species, and a praiseworthy effort at condensing and making accessible the widely scattered information dealing with the subject. In spite of its general excellence, however, there are a few points which the reviewer (possessing a very limited knowledge of the species dealt with) feels could have been made more clear and explicit. Thus while in the definition of its geographical distribution, the southern limit in summer is given as from Florida to central Texas (page 170), farther on, under "nidification" (page 248) there is mention of the character of nests found in Central America, leaving the reader in doubt as to whether the species occurs there in summer, or breeds in winter. Then in the treatment of the Cuban bird, a new name is offered for the subspecies, *Buteo platypterus cubanensis*, but in an exceedingly casual manner, neither a type specimen nor type locality being designated; also it is impossible to determine from the text whether or not the author believes the bird he is naming is recognizably distinct.—H. S. SWARTH.

THE RELATION OF BIRDS TO AN INSECT OUTBREAK IN NORTHERN CALIFORNIA during the spring and summer of 1911. By HAROLD C. BRYANT. (=CONDOR XIII, no. 6, Nov.-Dec., 1911, pp. 195-208, figs. 67-70).

This is the first attempt, so far as the reviewer is aware, to study the behavior of birds in the presence of abnormally large numbers of butterflies. An idea of the immense numbers of these insects (*Eugonia californica*) present during the outbreak in northern California, is given by Mr. Bryant's statement that an average of 108 per minute passed between two fir trees 20 feet high and 30 feet apart, and that 150 were counted on one square foot of ground at a drinking place. From direct observation the author learned that the Brewer blackbird, the western kingbird and meadowlark fed upon the butterflies, and examination of stomachs added the Say phoebe and the blue-fronted jay. Both sources of evidence pointed to the Brewer blackbird as the principal bird enemy of the insects, and flocks of this species were seen feeding almost exclusively upon the *Eugonia*. Thus only five species of birds out of a total of 45 species observed, and of 21 of which stomachs were examined, were found feeding upon butterflies under circumstances about as favorable for that pursuit as can be imagined. Eliminating the smaller birds which could hardly be expected to prey upon *Eugonia*, it was found that the known enemies constituted only about a fifth of the numbers of species of the remaining larger birds.

However, this seemingly very moderate attack upon butterflies, surpasses in amount of execution all previous records of the destruction of butterflies by birds in the United States combined. Whether they are too dry and dusty to be worth chasing or whether they are too active on the wing to be easily caught, or whether for some entirely different reason, the fact remains that butterflies are very little in demand with birds in the United States. Four records of birds eating butterflies are all that are afforded by the records of the examination of more than 40,000 stomachs in the Biological Survey, and one of these probably relates to the capture of a very recently emerged specimen, or to one torn from the pupa before emergence, as it was accompanied in the stomach by a pupa of the same species. This was an *Epargyreus tityrus* taken by a crow. The other records are *Eudamus* (sp.?) eaten by a yellow-billed cuckoo, and two pierid butterflies captured by kingbirds. Hence the fact that five of the species studied by Mr. Bryant utilized an unpopular kind of food, and that one of them did this to a considerable extent, gives all the more weight to the observation, as proof of the rule that birds usually take advantage of the abundant food supply created by an insect outbreak. On the whole Mr. Bryant's work is well done and his final conclusions are sound. In referring to Professor F. E. L. Beal's account of the Say phoebe, however, he misinterprets the statements there made. Professor Beal says that moths and caterpillars, not *butterflies*, forms ten percent of this bird's annual food. The case of the ash-throated flycatcher is similar. As the data given above shows, neither species was found by Professor Beal to take *butterflies*. The opinion expressed on page 200 that it "will be shown birds have an important part to play in the destruction of the butterflies", is hardly borne out by the facts presented.—W. L. MCATEE.

USEFUL BIRDS OF SOUTH AUSTRALIA—Our Feathered Friends. Protected Native Birds. [By A. G. EDQUIST] (=Journ. Dept. Agr. South Australia, XIV, no. 9, April 1911, pp. 848-855; no. 10, May 1911, pp. 936-938; no. 11, June 1911, pp. 1038-1042; no. 12, July 1911, pp. 1136-1140).

In the July-August number of THE CONDOR (XIII, no. 4, p. 142) the reviewer noticed the first of the articles above cited. Apparently the series is now finished. For a work purporting to set forth the economic value of birds, remarkably little is said about the food. On the average less than two printed lines are devoted to a characterization of the food of each species, and for nine out of a total of nineteen species this statement amounts to no more than an assertion that the bird is insectivorous. Of

course the reviewer understands that no specialized work in economic ornithology has been undertaken in Australia, but those whom the author is seeking to impress with the value of certain South Australian birds, have a right to demand more explicit information regarding food habits. Especially justifiable is this demand, since the pages of the *Emu*, and other publications on Australian birds, contain numerous specific references to the food of birds, many of which relate to one or another of the nineteen species treated by our author. It is not unreasonable to expect that these references should be collected by Australians interested in bird protection; but nevertheless, we have several publications on the "useful birds" or the "insectivorous birds" of certain States, which contain very sparing references to bird food.

A few instances from the papers now being discussed will illustrate this unfortunate tendency. The author says of the spotted bowerbird (*Chlamydera maculata*): "Food; chiefly seeds and berries of native plants" (no. 11, p. 1038). Mr. F. B. Campbell Ford notes that in Queensland this species feeds largely on white-cedar berries (*Emu* II, pt. 2, Oct. 1, 1902, p. 101), and Mr. A. J. North says: "It is very destructive in gardens, eating nearly every kind of cultivated fruit and berries, being especially fond of chilies, and the seeds of the introduced pepper plant (*Schinus molle*). In the stomachs of the specimens I have examined, I also found portions of unripe tomatoes, grape skins and seeds, and whole raisins" (Special Catalog I, Australian Museum, vol. I, part 2, 1902, p. 44). On another page (46) it is noted that the bird is fond of figs and grapes. Mr. Robert Hall adds that it is asserted by some observers that this bird is the greatest pest the orchardist has to contend against. . . . In Queensland they favor small fruits of a bright color, such as guavas, to the detriment of the grower" (The Useful Birds of Southern Australia, 1907, p. 252).

Our author's statement therefore is shown to be not only excessively brief and generalized but also inaccurate.

Regarding the grey shrike-thrush (*Collyricichla harmonica*) the author ungrammatically remarks "Its food is chiefly insectivorous, and often consists of caterpillars" (no. 10, p. 936). North says (l. c., p. 93) that it feeds on insects and their larvae, worms, snails, centipedes and small lizards. H. S. Dove specifies hairy caterpillars as part of its diet (*Emu* X, pt. 2, Oct. 1910, pp. 136-137), and Mr. D. Le Souef, the genial ornithologist whom many of us have had the pleasure of meeting in the United States, states that they take the eggs of other birds and that one was seen to pick up a chestnut-bellied quail killed by a hunter (*Emu*

III, pt. 3, Jan. 1904, pp. 185-186). Mr. J. B. Cleland reports the following finds from stomach examinations: Chrysomelid beetles, caterpillars of large hawk moth (*Ceguusia triangularis*), banksia moth (*Danima banksiae*), looper caterpillars, beetles (*Elator* sp., *Alicula* sp.), grubs, insect eggs, and bits of grasshoppers (*Emu* ix, pt. 4, April, 1910, p. 222). Hall adds to this list, spiders, snails and lizards (1. c., p. 106).

Our author gives a somewhat longer account of the food of *Graucalus melanops*, but still falls short of an easy possibility. He says "the graucalus lives chiefly upon large insects such as mantids, phasmids and grubs. It is said to be fond of certain native berries and certain species of ants" (no. 10, p. 937). North says: "Stomachs that I have examined contained principally caterpillars, also the smaller species of Phasmidæ and other soft-bodied insects, grasshoppers and a few small seeds and berries. It is very destructive in orchards and vineyards, feeding upon all the softer kinds of fruit, such as mulberries, peaches, apricots, cherries, plums, and bananas. From its fondness for the former fruit it is known in the Upper Clarence District, as the 'Mulberry bird.' About the vineyards at Albury it is one of the first birds to attack the grapes" (1. c., p. 104). Batey also notes that it devours grapes (*Emu* vii, pt. 1, July, 1907, p. 5), another observer notes that it feeds on native figs (*Emu* v, pt. 2, Oct., 1905, p. 86), and Johncock thinks that it distributes mistletoe seeds (*Emu* v, pt. 4, April, 1906, p. 224). C. F. Cole reports it feeding on olives, caterpillars, spiders, beetles, and pickings from a cow skeleton, as well as on larvæ of case moths (*Psychidae*) and of the painted apple moth (*Teia anartoides*) (*Emu* viii, pt. 3, Jan., 1909, pp. 154-155). Hall found two Coccinellid beetles and more than 100 ants in a single stomach of the "blue jay" (1. c., p. 92.).

These are not all of the notes that could be given on these species, since the reviewer of course has seen by no means all of the economic references in publications on Australian ornithology. Our author's accounts of other species also lack details which a little searching of the *Emu* and other standard publications would have supplied. This is especially noticeable in the case of the yellow-rumped tit (*Acanthiza chrysorrhoa*), the cuckoo (*Cuculus inornatus*), the magpie lark (*Grallina picata*), the white-fronted heron (*Notophox novae-hollandiae*), and the wood swallow (*Artamus leucorhynchus*). To be convincing, publications on the value of birds must present detailed proofs and it is regrettable that the comparatively small number available for Australian birds are not collected by the ornithologists most interested in securing their protection.—W. L. MCATEE.

CONSTITUTION OF THE COOPER ORNITHOLOGICAL CLUB

ARTICLE I.

Name and Objects

Sec. 1. This society shall be known as the COOPER ORNITHOLOGICAL CLUB.

Sec. 2. The objects of this Club shall be the study and advancement of Ornithology, with special reference to western North America.

ARTICLE II.

Divisions and Chapters

Sec. 1. This Club shall consist of two co-ordinate bodies known as the Northern and Southern Division respectively. The Northern Division shall hold its meetings at such places as it may determine upon in the cities about San Francisco Bay, and the Southern Division shall hold its meetings at such places as it may determine upon in the cities of Los Angeles County.

Sec. 2. Local chapters outside the territory described as the home of the two Divisions may be instituted on application made by five or more members so located by residence as to render such chapter meetings a convenience. Such application shall be transmitted in writing to either Division, and the same shall be acted upon by both Divisions in the same manner as upon applications for membership as hereinafter provided for. The powers and privileges of such chapters shall be as subsequently defined.

ARTICLE III.

Members

Sec. 1. There shall be three classes of members of this Club, active, life, and honorary.

Sec. 2. Any person interested in the study of birds and of not less than sixteen years of age shall be eligible to active membership.

Sec. 3. Any active member may become a life member by paying into the treasury of the Club the sum of fifty dollars and notifying the secretary of his Division that he desires to be enrolled as a life member.

Sec. 4. All applications for active or life membership shall be in writing, signed by the applicant and by the member proposing him, and shall state the name and permanent post-office address of the applicant. Such applications shall be forwarded to the Secretary of either Division, and he shall immediately upon receipt of same forward a copy to the Secretary of the other Division. Such applications shall be read at the first subsequent meeting of both

Divisions, and shall be acted upon at the second subsequent meeting of each Division. A two-thirds vote by ballot of the members present at a regular meeting of each Division shall be necessary to elect an applicant to active membership.

Sec. 5. Every application for active membership shall be accompanied by the sum of two dollars (\$2.00), as dues for the calendar year, in consideration of which the member shall be entitled to all publications of the Club for such calendar year, and to all benefits accruing to active members of the Club. This fee shall be transmitted to the Business-manager of the Club. In event of rejection said fee shall be refunded to applicant.

Sec. 6. Any person who shall, in the opinion of the Club, have rendered sufficiently valuable service in the advancement of western Ornithology, shall be eligible to honorary membership in the Club.

Sec. 7. All propositions for conferring honorary membership shall be in writing and signed by at least four active members of the Club and filed with the Secretary of either Division. Such a proposition shall be acted upon at a regular meeting of the Division in which it is introduced, when it shall be sent to the other Division for similar action. A unanimous vote at a regular meeting of each Division shall be necessary to confer the degree of honorary membership. Honorary members shall be exempt from all dues of either Division of the Club, and shall be entitled to all the rights and privileges of active members.

ARTICLE IV.

Officers

Sec. 1. The officers of each Division shall consist of a President, Vice-president, and Secretary. There shall also be an Editor and one or more Business-managers of THE CONDOR chosen from the active members of the Club, who shall be nominated by the officers of both Divisions acting as a committee of the whole, such nominations to be submitted for the approval of the two Divisions at the February meeting of each year, and, in order to stand, shall receive the approval by ballot of two-thirds of the members present at such meetings.

Sec. 2. In case of public meetings, or general meetings at which both Divisions shall be represented, such meeting shall be presided over by the President of the Division nearest whose home, as indicated above, such meeting shall be held, and the Secretary of the other Division shall act as recording officer. In case of inability for any reason of either of these officers to act, then their vice-officer shall be the like officer of the other Division.

Sec. 3. The Secretary of each Division shall keep a record of the meetings of the Club; shall give notice of the time and place of meetings at least one week in advance to members who request it and so signify in writing; shall notify those members-elect whose application first came to him of their enrollment as members in good standing; shall conduct the correspondence of the Division, and perform such other duties as properly devolve on this office.

Sec. 4. The Business-manager shall have control of the finances of the Club; shall receive all dues from members, subscriptions to official organ and donations, and shall receipt for same; shall expend the funds of the Club in the payment of debts authorized by the Club; shall supervise the raising of special funds, by private subscription or otherwise, and expend same as directed by the Club; and shall render a report to each Division in January of each year, and at such other times as may be required. The Business-manager may appoint one or more assistants.

Sec. 5. The Editor of THE CONDOR shall decide upon all matters usually pertaining to the conduct of a periodical, providing that nothing thereby conflicts with the purposes or exceeds the resources of the Club.

Sec. 6. Vacancies occurring in any office shall be filled until the next annual election by a majority vote of the members present at a regular meeting of the Division in which vacancy may occur, except that where vacancies occur in offices regularly requiring election by both Divisions, new officers to fill such vacancies shall be re-nominated and re-elected in the regular way at the first meeting following such vacancy.

ARTICLE V.

Elections

Sec. 1. The nominations for officers in each Division shall be made at the last meeting in each year.

Sec. 2. The election of officers in each Division shall occur in January in each year, and the term of office shall begin immediately after election and extend until their successors are elected and qualified.

Sec. 3. The election of all officers shall be separately and by ballot, a majority vote of the members present being necessary to election.

ARTICLE VI.

Meetings

Sec. 1. Stated and special meetings of the Divisions of the Club may be provided for as deemed expedient by each Division, provided that not more than two months shall elapse between any two stated meetings, unless by postponement for unusual cause.

Sec. 2. Special meetings may be called in either Division by the President thereof, provided that due notice be given by the Secretary to the members of such Division.

Sec. 3. Seven active members shall constitute a quorum for the transaction of business at any meeting of either Division.

Sec. 4. The regular meetings of the Club shall be open to the public, except when deemed inexpedient for special reasons.

ARTICLE VII.

Resignations and Expulsions

Sec. 1. All resignations shall be in writing, addressed to the Secretary of either Division, and may be accepted by a majority of those present at the next regular meeting, provided all dues and assessments of such resigning member shall be paid to the date of filing of resignation.

Sec. 2. Any member may be expelled from the Club on satisfactory evidence that such member is an improper person to be connected with the Club. Such expulsion must be by motion in writing, signed by two active members in good standing, and introduced at a regular meeting of either Division. Such motion shall specify the grounds alleged to render such member an improper person. Upon the introduction of such motion the Secretary shall at once notify the member of such motion and transmit a copy thereof to him. Evidence may be produced at the next regular meeting in support of the motion, and the member shall be allowed to be present and to present such evidence in rebuttal as he may have. After such evidence has been presented, the President of the Division shall submit the question to the members and a two-thirds vote by ballot of the members present shall be necessary in order to pass such motion; provided, however, that the action of a Division in the expulsion of a member shall be ratified by the other Division before such member shall be deemed to have been expelled.

ARTICLE VIII.

Powers Defined

Sec. 1. Each Division shall, in the manner provided by this Constitution, have the power to elect new members to the Club subject to the approval of the other Division, to elect its own officers, levy such assessments as it sees fit, frame, adopt and amend such By-Laws for its own government as may not conflict with this Constitution, and perform such other functions as may come within its province. In case of disagreement between the Northern and Southern Divisions upon any matter appertaining to the Club as a whole, such matter shall be balloted upon by each Division at a regular

meeting within two months of the time of such disagreement; such ballots shall be counted in open meeting of the Division in which cast; the Secretary of the Southern Division shall immediately forward the result in his Division to the Secretary of the Northern Division and the matter shall be decided by the majority of the total number of votes cast, for or against, by the two Divisions. In case of a tie the matter shall be brought up in the same manner at the next regular meeting of each Division, and votes canvassed as above.

Sec. 2. Each Chapter shall be amenable to the two Divisions of the Club, and shall be entitled to elect such officers as are necessary to its organization and operation. The Secretary of a Chapter shall make reports including transcript of minutes promptly following each meeting to the Secretary of both Divisions. A Chapter may levy assessments upon its own members, but shall not incur any indebtedness in the name of the Club. Each Chapter may elect its members in the manner provided in this Constitution, such action to be acted upon by both Divisions at the first regular meeting following. Any papers read before any Chapter meeting shall be transmitted immediately thereafter to the Editor of THE CONDOR to be held by him for the Club.

Sec. 3. Whenever any public or other institution shall present a request to either Division for its co-operation or supervision in connection with the establishment and maintenance of any museum or other enterprise looking to the promotion of ornithological study and research, then such Division shall be empowered to undertake such co-operation or supervision on approval by a majority vote of the members present at any regular meeting and ratification at the next regular meeting of the other Division, and to appoint in the usual way proper committee or representative for such purposes, and such committee or representative duly appointed shall have power to act in the name of the Cooper Ornithological Club, provided that neither Division nor its representatives shall have the power to incur any indebtedness in the name of the Club, except when duly authorized by a two-thirds vote of the members present at a regular meeting of each Division.

ARTICLE IX.

Finances

Sec. 1. The dues of an active member shall be two dollars (\$2.00) per annum, payable to the Business-manager in January of each year.

Sec. 2. Life members shall pay the sum of fifty dollars (\$50.00) in full of all dues.

Sec. 3. All bills for current expense of either Division shall be paid by the Business-manager of the Club out of the general fund, including

expense incurred for the publication of THE CONDOR, special publications, and necessary expenses of the Secretary of either Division. All other bills shall be first authorized by the Division for whose benefit the said expense is incurred before they shall be paid by the Business-manager.

Sec. 4. Any active member who shall fail to pay any dues charged against him within four months after being notified of his delinquency may be subject to suspension from the Club.

ARTICLE X.

Scientific Publications

Sec. 1. The official organ of the Club shall be "THE CONDOR", a bi-monthly periodical published by the Club.

Sec. 2. The proceedings of each meeting of each Division shall be briefly reported in THE CONDOR, together with such other matter as the Editor may deem advisable.

Sec. 3. The Editor may, at his discretion, appoint one or more associates to serve through the current year.

Sec. 4. All publications of the Club shall be mailed to all active members in good standing, and to all honorary members.

Sec. 5. The Club shall have the power to publish such reports, proceedings, memoirs, or other works on Ornithology as may be authorized at any regular or special meeting of either Division, and ratified at the succeeding meeting of the other Division, and to supervise and direct their distribution as it may see fit. The Editor of THE CONDOR shall act also as Editor, with such associates as he may appoint, of any other publications of the Club.

ARTICLE XI.

Amendments

Sec. 1. This Constitution may be amended at the pleasure of the Club; such amendments shall be in writing, and must be proposed at a regular meeting of one Division, action to be taken at the next regular meeting. Amendments must be passed by a majority vote of the members present, and ratified similarly by the other Division.

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

SEPTEMBER.—The September meeting of the Southern Division was held on Thursday evening, September 28, in the office of H. J. Lelande, 246 Wilcox Bldg., Los Angeles, with President Morcom in the chair and the following members present: Howard Robertson, F. S. Daggett, H. J. Lelande, Loye Holmes Miller, O. W. How-

ard, George Willett, A. B. Howell, Antonin Jay, Otto Zahn and J. E. Law.

The minutes of the August meeting were read and approved. On motion of Mr. Lelande, seconded by Mr. Zahn and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Messrs. E. J. Darlington and Bernard Bailey, proposed at the last meeting. Applications were presented from Mr. J. S. Douglas, Bakersfield, Calif., proposed by W. Lee Chambers, and Mr. L. W. Welch, Long Beach, Calif., proposed by Loye Holmes Miller.

The Club then took up the discussion of the new constitution which had been returned by the Northern Division with slight amendments to three of the articles. These were discussed at length and detailed modifications adopted. Finally, on motion of Mr. Lelande, seconded by Mr. Miller and unanimously carried, the new constitution as then amended was adopted in its entirety.

The Secretary then read the minutes of the Northern Division for September, after which the meeting was adjourned.—J. E. LAW, *Secretary*.

OCTOBER.—The October meeting of the Southern Division was held on Thursday evening, October 26, in the office of H. J. Lelande, 246 Wilcox Bldg., Los Angeles, with President Morcom in the chair and the following members present: W. Lee Chambers, F. S. Daggett, Evan Davis, Henry Grey, J. Grinnell, A. B. Howell, Antonin Jay, H. J. Lelande, J. E. Law, C. C. Lamb, Loye Holmes Miller, Guy C. Rich, Howard Robertson, H. C. Tracy, George Willett, and Otto Zahn.

The minutes of the September meeting were read and approved. On motion by Mr. Willett, seconded by Mr. Lelande and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Mr. J. S. Douglas proposed at last meeting. Applications were presented as follows:

Dr. F. H. Ottmer, Eureka, Calif., proposed by C. Irvin Clay; Robert Thomas Moore, 46 Mansion Ave., Haddonfield, N. J., R. L. More, Vernon, Texas, both proposed by W. Lee Chambers; George W. Schussler, 1345 Oak Street, San Francisco, John B. Litsley, Jr., 1722 Alston Ave., Fort Worth, Texas, both proposed by H. W. Carriger.

On motion made by Mr. Robertson, seconded by Mr. Zahn and duly carried, the business managers were authorized to use their judgment in the matter of printing copies of the new Constitution. The minutes of the Northern Division for October were read by the Secretary. On motion of Mr. Robertson, seconded by Mr. Miller and unanimously carried, the resolution adopted by the Northern Division

inviting the A. O. U. to meet in San Francisco in 1915 in conjunction with the Cooper Ornithological Club was adopted.

Mr. Grinnell then gave a very interesting talk covering his summer's work and the faunal problems that he has been endeavoring to work out. Adjourned.—J. E. LAW, *Secretary*.

NOVEMBER.—The November meeting of the Southern Division was held on Friday evening, December 1, in the office of H. J. Lelande, 246 Wilcox Bldg., Los Angeles, with President Morcom in the chair and the following members present: W. Lee Chambers, F. S. Daggett, H. Grey, O. W. Howard, A. B. Howell, Antonin Jay, H. J. Lelande, C. C. Lamb, Dr. T. S. Palmer, Miss Elizabeth Palmer, L. G. Peyton, Guy C. Rich, Howard Robertson, L. W. Welch, George Willett, J. E. Law.

The minutes of the October meeting were read and approved. On motion by Mr. Willett, seconded by Mr. Lamb, and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership, Messrs. F. H. Ottmer, R. T. Moore, R. L. More, Geo. W. Schussler, John B. Litsley, Jr., and L. W. Welch, nominated at previous meeting.

Applications were presented as follows: Sherwood Coffin, San Francisco, proposed by Joseph Mailliard; Chas. L. Whitcher, and Mrs. L. L. Fox, Los Olivos, Calif., proposed by Vernon Bailey; Sarah R. Atsatt, Los Angeles, and Elizabeth Heald, Berkeley, both proposed by H. C. Bryant; G. W. Stevens, Alva, Oklahoma, proposed by A. B. Howell; Wm. A. Strong, San Jose, Calif., proposed by A. B. Howell.

On motion made by Mr. Robertson, seconded by Mr. Peyton, and duly carried, the application of the Chemical Society and the Geographical Society of the Pacific, were approved for membership in the Pacific Association of Scientific Societies, and March 5, 6, 7, 1912, were approved as the dates and Stanford University as the place for the next annual meeting of the P. A. S. S., and the Business Manager was instructed to remit \$5.00 to said Association to cover the annual dues.

Mr. Robertson made a short verbal report on the progress of the Museum of Science, History and Art, on whose Board of Governors he is the member from the Cooper Ornithological Club. He reports that the Museum is rapidly nearing completion and that Mr. F. S. Daggett has been appointed by the Board of Governors as Director of the Museum. Mr. Daggett has already assumed control and the Cooper Club is congratulating itself that one of its members has been available for this position. The Museum has been taken out of politics and its maintenance for a period of fifty years has been provided for. The Board of Governors are to

consist of representatives of the leading scientific societies of this locality. Mr. Daggett has already secured valuable material in the fossils taken from the Rancho la Brea beds, and this feature alone will be enough to make the Museum a great one. Few people realize the amount of material of this kind already on hand.

A paper entitled "A Visit to Nootka Sound," by H. S. Swarth was read by the Secretary. An insight was given into the history of this locality as well as the physical conditions of the region. The paper included a list of all the birds noted there.

The Club then listened to a very interesting talk by Dr. T. S. Palmer on the bird reservations of the United States, of which he has charge. There are fifty-one of these at the present time, and scattered as they are throughout the country some very interesting features are presented. It is expected that aside from the protection of the birds themselves, some very noteworthy problems will be worked out through the facilities thus placed at the naturalist's disposal. The Club gave a unanimous vote of thanks to Dr. Palmer for his instructive talk, after which it adjourned.—J. E. LAW, *Secretary*.

NORTHERN DIVISION

OCTOBER.—The October meeting of the Northern Division was held at the Museum of Vertebrate Zoology, Berkeley, Saturday evening, October 21. Vice-president H. W. Carriger was in the chair, and the following members present: E. W. Gifford, H. L. Coggins, M. S. Ray, O. J. Heinenann, H. C. Bryant, J. Grinnell, W. P. Taylor, and H. S. Swarth.

The minutes of the September meeting were read and approved. The following applications for membership were presented: George W. Schussler, San Francisco, Calif., and John B. Litsley, Fort Worth, Texas, both presented by H. W. Carriger. J. S. Douglas, Bakersfield, Cal., and E. J. Darlington, Wilmington, Delaware, whose names were read last month, were elected to membership in the Club.

The following resolution, offered by W. P. Taylor, was unanimously passed, and ordered sent to the Southern Division for approval, and to be forwarded to the Secretary of the American Ornithologists' Union:

"Whereas no meeting of the American Ornithologists' Union has been held in the west since 1903, and

"Whereas the progress of the science of Ornithology will be best subserved through a closer co-operation of those interested in it throughout the nation, and

"Whereas the members of the Cooper Ornithological Club sincerely desire to enlarge their acquaintanceship among members of the

A. O. U. and to come into closer personal sympathy with them, be it

"Resolved, that the Cooper Ornithological Club hereby extends a cordial invitation to the American Ornithologists' Union to hold its annual meeting for 1915 in San Francisco jointly with the Cooper Ornithological Club."

There being no further business the program of the evening was then taken up. Mr. H. C. Bryant spoke on "The Relation of Birds to an Insect Outbreak in Northern California", the history of a plague of butterflies in Shasta County, and the species of birds found feeding on them. Adjourned.—H. S. SWARTH, *Secretary*.

NOVEMBER.—The November meeting of the Northern Division was held on the 18th at the Museum of Vertebrate Zoology, with President Mailliard in the chair and the following members present: Messrs. Heinemann, Grinnell, Carriger, Gifford, Ray, Anderson, Fisher, Camp, Coggins, and Swarth. The minutes of the October meeting were read, followed by the Southern Division minutes for September. George W. Schussler, and John B. Litsley, Jr., whose names were presented last month by H. W. Carriger, were elected to membership. The following new names were proposed: Charles L. Whitcher and Mrs. L. L. Fox, of Los Olivos, California, both presented by Vernon Bailey; Miss Sarah R. Atsatt, Los Angeles, and Miss Elizabeth Heald, Berkeley, presented by H. C. Bryant; F. H. Ottmer, Enreka, presented by C. I. Clay; and R. L. More, Vernon, Texas, and R. T. Moore, Haddonfield, New Jersey, presented by W. Lee Chambers.

A suggestion of Mr. A. B. Howell's was brought to the attention of the meeting—that a member be appointed in each town represented at the meeting, to secure the subscription to THE CONDOR, of their respective public libraries. In accordance with this suggestion the chair made the following appointments: In Berkeley, W. P. Taylor, in Alameda, E. W. Gifford, in Oakland, R. S. Wheeler, in Palo Alto, W. K. Fisher, in San Francisco, H. L. Coggins, and in Sierra Madre, Charles Camp.

The matter of holding an annual club dinner, as heretofore, was decided in the affirmative, and the chair appointed Mr. John W. Mailliard a committee of one to attend to the necessary details. A communication from the secretary of the Pacific Association of Scientific Societies was then placed before the meeting, containing the following matters to be acted upon: (1) the five dollars yearly dues of the Cooper Club is now payable; (2) the Chemical Society has applied for admission to the Pacific Association. Shall this organization be voted into membership? (3) Shall March 5, 6, 7, be the dates, and Stanford University the place, of the next

annual meeting of the Association? The first, as a recognized obligation of the Club, required no formal action, further than that the secretary notify the treasurer of the fact. The two other questions were answered in the affirmative.

The nomination of officers for 1912 was next taken up, and the following selections were made: President, H. L. Coggins; Vice-president, H. W. Carriger; Secretary, H. S. Swarth.

Mr. J. Mailliard, as chairman of the constitution committee, reported that the new constitution had been received by him from the Southern Division, that that Division had adopted the constitution with certain slight changes, that the committee could see no objection to the changes that had been made, and that the committee recommended the adoption of the constitution as it now stood. This was accordingly done.

Mr. Grinnell entertained the meeting with a talk on certain questions relative to the geographical distribution of animals, demonstrating his points with certain recently ascertained facts relative to the respective ranges of two of the southern California song sparrows, *Melospiza m. cooperi* and *M. m. saltonis*. Adjourned.—H. S. SWARTH, *Secretary*.

DECEMBER.—The December meeting of the Northern Division was held at the Museum of Vertebrate Zoology, Saturday evening, December 16. Vice-president Carriger was in the chair and the following members present: Messrs. Camp, Coggins, Grinnell, Gifford, Taylor and Swarth. The minutes of the November meeting were read. The following, whose names were presented at the previous meeting, were elected to membership: Mrs. L. L. Fox, Miss Sarah R. Atsatt, Miss Elizabeth Heald, C. L. Whitcher, F. H. Ottmer, R. L. More, and R. T. Moore. New names were presented as follows: Sherwood Coffin, proposed by Joseph Mailliard and Ernest Mailliard; L. W. Welch, proposed by L. H. Miller, and G. W. Stevens and W. A. Strong, proposed by A. B. Howell. A communication from the secretary of the Pacific Association of Scientific Societies was read, stating that the Geographical Society of the Pacific had applied for membership in the Association. The division voted "yes" on the application. The election of officers for the Northern Division for 1912 then took place, with the following results: President, H. L. Coggins; Vice-president, H. W. Carriger; Secretary, H. S. Swarth.

W. P. Taylor spoke on "The Laws of Temperature Control, with special reference to the birds of the Mt. Whitney Region", his remarks calling forth considerable discussion from his auditors. Adjourned.—H. S. SWARTH, *Secretary*.

For Sale, Exchange and Want Column.—In this space members of the Cooper Club are allowed one notice of about 35 words in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. Notices must be written plainly, on one side only of a clean sheet of paper. For this department address W. LEE CHAMBERS, *Eagle Rock, Los Angeles Co., Cal.*

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WANTED—Correspondence with all persons who have done any kind of ornithological work in Wyoming. Send me names and addresses of yourselves and friends. ERNEST PILLSBURY WALKER, *Dept. of Biology, Univ. of Wyom., Laramie, Wyom.*

WANTED—Wilson Bulletin 2, 4; The Oologist, Utica, N. Y., vol. I complete; II, 1, 2; III, 8, 9; IV, complete; V, complete; Bulletin of the Cooper Ornith. Club, vol. I, odd nos. W. LEE CHAMBERS, *Eagle Rock, Los Angeles Co., Cal.*

WANTED—Audubon Ornith. Biography, vols. 2, 4, 5; Nuttall, Manual, 1840, 2 vols.; Bull. Cooper Club, I, no. 1; Bird Lore, vol. II, no. 2; and others. Also bird skins. B. H. SWALES, *Grosse Ile, Mich.*

WANTED—Ornithologist & Oologist, vol. 13, no. 2, Feb. 1888; Osprey 3, no. 7. O. WIDMANN, 515 Von Versen St., St. Louis, Mo.

FOR EXCHANGE—A. O. U. Nos. 1 1-4, 1-4; 11 1-2; 16 1-1; 44 1-3; (85) 1-1; 202 1-4; 201 1-5; 263 1-4; 329 1-2; 339 1-3; 342 1-2; 346 1-2; (359.1) 1-5; 389 1-4; 390 1-7; 394c 1-5; 412a 1-7; 467 1-4; 477 1-5; 487 1-4; 498 1-4; 498c 1-2; 511b 1-4; 517 1-3; 529 1-4; 540 1-4; 549 1-4; 550 1-4; 560 1-4; 563 1-4; 581 1-4; 587 1-3; 598 1-4; 608 1-2; 624 1-4; 648a 1-3; 659 1-4; 673 1-4; 674 1-5; 681 1-4; 687 1-4; 704 1-4; 721 1-6; 735a 1-4; 755 1-4; Wandering Albatross 1-1; Rock-hopper Penguin, single; King Penguin 1-1, end blown. JOHN H. FLANAGAN, 10 Weybosset St., Providence, R. I.

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THE CONDOR

A Magazine of Western
Ornithology



Volume XIV

March-April, 1912

Number 2



(W.K.F.)

COOPER ORNITHOLOGICAL CLUB

Smithsonian Institution
APR 11 1912
National Museum

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THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XIV

March-April, 1912

Number 2

A WEEK AFIELD IN SOUTHERN ARIZONA

By F. C. WILLARD

WITH SEVEN PHOTOS BY THE AUTHOR

AS DISTANT fields look the greenest, so the giant mesquites and sahuaros in the vicinity of Tucson seemed more inviting than the forests of the Huachuca Mountains where I was collecting rather unsuccessfully at the time. Consequently, on May 20, 1911, I set out with my Mexican moso, George. We left Berner's in Ramsay Canyon at six A. M. and, as the machine ran well, were thirty-two miles on our journey by nine o'clock in spite of some very rough going. At this point a defective transmission gear broke and we began repairs. I will not inflict on the reader the way we passed the balance of the day. A sixteen mile walk, a luckily found telephone and some accommodating friends from Tombstone furnished a new gear and at 7:30 that evening we were on our way once more.

We had had little chance to look for birds but saw a few. Scorched Horned Larks (*Otocoris alpestris adusta*) were very numerous and evidently nesting. I saw one carrying grass and found its partially completed nest. While walking to secure assistance I also found a nest of the White-necked Raven (*Corvus cryptoleucus*) containing seven fresh eggs. The nest was placed in a tall yucca standing out on the mesa. Farther on I encountered some full grown young Western Horned Owls (*Bubo virginianus pallescens*) in a grove of giant cottonwoods. They appeared to have been raised in an old hawk's nest in the top of one of the trees. Here I also met the Vermilion Flycatcher (*Pyrocephalus rubinus mexicanus*), Ash-throated Flycatcher (*Myiarchus cinerascens*), Lucy Warbler (*Vermivora luciae*), Sonora Yellow Warbler (*Dendroica aestiva sonora*), Western Kingbird (*Tyrannus verticalis*), Say Phoebe (*Sayornis sayus*), White-winged Dove (*Melopelia asiatica*), Mourning Dove (*Zenaidura macroura carolinensis*), Mexican Ground Dove (*Chaemepelia p. pallescens*), and Desert Sparrow Hawk (*Falco sparverius phalaena*).

We spent the night at the Empire ranch, getting there after dark with but forty miles of our trip completed. We camped under a small mesquite a short distance from the ranch house and close to a mixed grove of willows and cottonwoods. Hundreds of the Western Kingbirds were nesting in this grove, which was quite extensive, and in adjacent mesquites. All the other small species previously mentioned were found here. Also the Desert Sparrow (*Amphispiza bilineata deserticola*) and Killdeer (*Oryzochus vociferus*).

At four o'clock the next morning the Kingbirds began calling, and before it was light so thoroughly awakened us that we got up and prepared our breakfasts. Five-thirty, with the sun just peeping over the Whetstone Mountains to the east, found us on the road. From here we climbed a long, easy grade over the Black Horse mountains and started down the other side, passing through Rosemont with its deserted buildings, and at last crossed the Southern Pacific Railroad at Vail. Here, I investigated numerous nests of the Palmer Thrasher (*Toxostoma curvirostre palmeri*) in the chollas along the roadside and collected one nice set

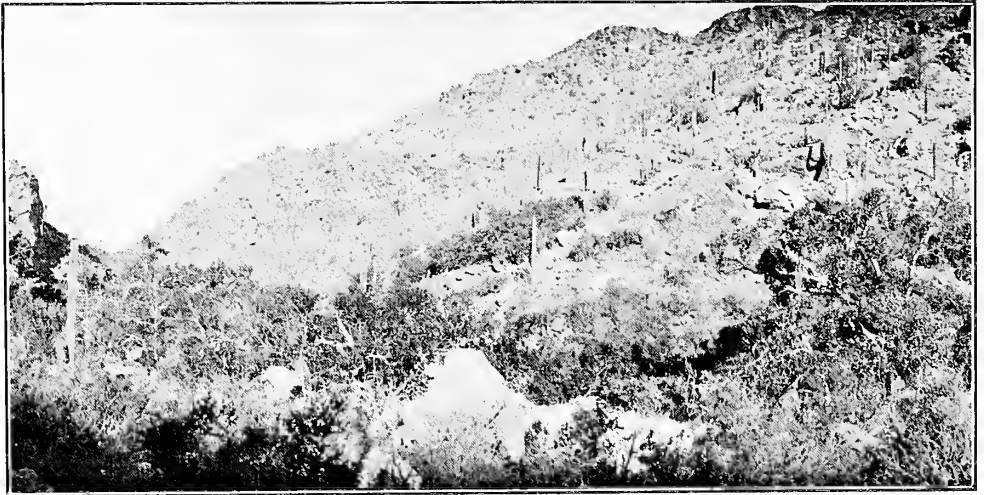


Fig. 13. LOOKING DOWN SABINO CANYON, IN THE WESTERN FOOTHILLS OF THE SANTA CATALINA MOUNTAINS, ARIZONA

of three eggs. Incubation was fresh. About noon we rolled into Tucson, having lunched a few miles out. We recorded eighty-eight miles to this point.

Having filled our reservoirs, we left for Sabino Canyon in the Santa Catalina mountains, northeast of Tucson. Rough roads and heavy sands were met with most of the way. Passing through deserted Fort Lowell, I wondered in which of the old ruins Major Bendire had made his home. We crossed the Rillito wash and were soon among the giant cactus. Some Western Martins (*Progne subis hesperia*) were seen hovering about one and investigating its various nesting holes.

Boulders and a high center required some road work, but with pick and shovel we removed them and were not long delayed. Three p. m. found us in Sabino Canyon, fourteen miles from Tucson and at the "head of navigation" for all vehicles. There were numerous Sunday picnic parties about, but by six o'clock they had all gone and we were left alone. I had spent the intervening hours reconnoitering up the canyon, looking for Broad-billed Hummers (*Cyan-*

thus latirostris). Males were quite numerous but I saw only one female. Arizona Hooded Orioles (*Icterus cucullatus nelsoni*) were nesting in large numbers. I also found a nest full of young Arizona Woodpeckers (*Dryobates arizonae*) old enough to leave the nest when I climbed up. The nest was forty feet up in a dead branch of a small cottonwood. The parents were gathering food from the giant cactus with which the sides of the canyon were thickly studded.

As soon as it began to grow dark, the whimpering calls of Elf Owls (*Micro-pallas whitneyi*) came from every side. Two alighted in a mesquite, almost within reach of our hands as we lay beneath it. They were not in the least afraid of us though we talked and moved quite freely. From high up on the canyon's rim came the "whoo-whoo" of a Western Horned Owl, and we could see it silhouetted against the sky as it flew from one rock to another. The owls all ceased calling shortly after it became real dark, and the canyon was in utter silence. The cessation of the calling was so abrupt that we could almost feel the silence.

While getting breakfast the next morning I heard a Plumbeous Gnatcatcher (*Poli-optila plumbea*) calling, and after a few minutes search found its partially completed nest in a small palo verde. The nest was about three feet from the ground. Both birds were present but the female only was building.

We spent the balance of the morning looking for Broad-billed Hummers' nests but were unsuccessful. One female was seen but was too swift and shy for us to locate her nest. Judging from her actions she had one near by, as she resented the intrusion of a Black Phoebe (*Sayornis nigricans*) and actually drove it away. Several pairs of Verdins (*Auriparus flaviceps*) were building in bushes along the sides of the canyon, and two male Arizona Cardinals (*Cardinalis c. superbus*) scolded us, but we could not locate their nests nor see the females. A pair of Ravens (*Corvus corax sinuatus*) were seen feeding their young in a nest placed in a small cave near the top of a low cliff. Nests of Arizona Hooded



Fig. 14. CUTTING INTO THE NEST HOLE OF A GILA WOODPECKER. THE LEFT HAND BRANCH HELD AN ELF OWL'S NEST

Orioles were everywhere, and contained variously fresh or incubated eggs or young just hatched. Several pairs of Rock Wrens (*Salpinctes obsoletus*) were present, and a pair of Canyon Wrens (*Catherpes mexicanus conspersus*) were feeding a family of full grown young.

Discouraged by our poor luck, we worked back down the canyon, going some distance below our camping place. A nest full of young Black Phoebe was found on a ledge under a projecting boulder. Several White-throated Swifts (*Aeronautes melanoleucus*) were skimming a pool of water. Otherwise the results were a counterpart of our experience up the canyon. We investigated several giant cactuses without finding anything except a family of young Gila Woodpeckers (*Centurus uropygialis*). There were three young fully grown.

Returning to the machine, we lunched, loaded our dunnage, and started toward Tucson. We stopped where the Martins had been seen but there were no signs of nests. By using considerable care I was able to climb about a dozen of the largest giants. Three Elf Owls were found on their nests and one set of three incubated eggs secured. The other two nests contained newly hatched young and pipped eggs. Chollas of several varieties were present, and we found several nests of Palmer Thrasher. One set of four eggs was secured, a very unusual number. I have found but one other set of four, taken in the Huachuca Mountains.

We walked about a mile from this point and came to the wash from Sabino Canyon. Sycamores and cottonwood with a few willows and ash trees formed the fringe along it, but bird life was very scarce. I found a House Finch's nest built in an old Bullock Oriole's nest. It contained five fresh eggs. Four is the usual set in this section, though five is not an uncommon number. Returning to the machine from here, we continued on into Tucson, and picked up our ladder which I had ordered. It was a light affair sixteen feet long and was readily carried alongside over the fenders.

Since it was late by this time, we could make but a short run a few miles east of town and camp. Darkness overtook us before we finished supper and had the beds made down. Texas Nighthawks (*Chordeiles a. texensis*) were quite numerous and darted back and forth close to our heads. The growth was principally chollas and grease-wood, with some small mesquite and a few palo verde. Bendire Thrashers (*Torostoma bendirei*), Palmer Thrashers, Plumbeous Gnatcatchers, Cactus Wrens (*Helcodytes brunneicapillus couesi*) and Road-runners (*Geococcyx californianus*) constituted the bird life in that immediate section. Nests of young of all the species mentioned were found in a few minutes walk the next morning. We secured one set of fresh eggs of Bendire Thrasher and found several nests of the same ready for eggs. It seemed to be just between the time for the first and second broods for them. Many young of the first brood were seen running around among the chollas.

We did not tarry long here but pulled out for the mesquite forest eleven miles south of the city. The newly completed road was inches deep with dust, and the old road full of chuck holes, so going was slow. Arriving at the first sahuaro, scarred with the assaults of former years, I shouldered the ladder and George carried the other traps. In a few moments I was among the arms of my old antagonist (they always seem such to me), and the first hole cut into gave me a fine set of three Elf Owl. I lifted the bird from the nest and tossed her into the air. She dropped like a stone nearly to the ground and then spread her wings and flew off into the underbrush. Incubation was well begun. Carrying my

ladder to the next giant I examined the holes in the arms first and found three young Gilded Flickers (*Colaptes chrysoides*) in one of them. One after another they left the nest and flew away, getting gradually closer to the ground and finally alighting thereon at a distance of a hundred yards or more. One tried to alight on the back of our auto seat but it was too slippery and he fell to the ground. They seemed remarkably strong on the wing for their first flight.

The next sahuaro held a family of young Mexican Screech Owls (*Otus asio cineraceus*). There were three of them, all well feathered but with considerable down still clinging to them. One parent was in another hole in the same cactus. A set of Ash-throated Flycatchers was found in the same cactus. It was in a hole in an arm and consisted of four eggs with incubation well advanced. The nest was a vile mess of mixed furs, full of vermin, which I unceremoniously dumped. Other giants yielded two more sets of Elf Owl, three each, and several nests of young Gilded Flickers. One nest of four young Gila Woodpeckers was found and several young of this species were seen flying about. We spent the whole



Fig. 15. CLUMPS OF CHOLLA CACTUS; THE FAVORITE NESTING SITE OF PALMER AND BENDIRE THRASHERS

day in this fashion, skirting along the edge of the mesquite forest for a distance of some six miles. That night we camped close to where we took the first owl's nest, intending to go into the forest the next day.

Starting at the break of the morning of the 24th we stopped for water at a Mexican ranch and found on inquiry that we would have to run back as far as Dos Reales, an Indian village close to San Xavier Mission. The name of this village, translated into the English language, means "Two Bits," or twenty-five cents. It hardly seemed worth that sum.

The mesquite forest is on an Indian reservation, which accounts for the fact that it is not all cut off yet. The mesquite trees are wonders of their kind. There were some whose trunks, at the base, scaled over four feet in diameter. The large bases branched a few feet from the ground into several limbs fifteen or eighteen inches in diameter. The tallest reached a height of over sixty feet. The undergrowth is a thick mass of hackberry, etc., with various thorny bushes growing close to the ground. Meandering wood roads lead in every direction and one can

never be quite sure he is on the right one. Into this tangled wildwood we drove some four miles from the village. Then leaving our vehicle, we began to work across the forest, being careful to work back in the direction we had come from so as to have our auto tracks to follow when we were ready to return.

Least Vireo (*Vireo belli pusillus*), Arizona Pyrrhuloxia (*Pyrrhuloxia sinuata*), Western Mockingbird (*Mimus polyglottos leucopterus*), Bullock Oriole (*Icterus bullocki*), Lucy Warbler (*Vermivora luciae*), Vermilion Flycatcher (*Pyrocephalus r. mexicanus*), Gambel Partridge (*Lophortyx gambeli*), Verdin (*Auriparus flaviceps*), Abert Towhee (*Pipilo aberti*), Long-tailed Chat (*Icteria virens longicauda*) and Phainopepla (*Phainopepla nitens*) were present in swarms. White-winged Doves outnumbered any two of those mentioned. Mourning Dove, Mexican Ground Dove, Ash-throated Flycatcher, and Arizona Hooded Oriole were very numerous.



Fig. 16. NEST OF PALMER THRASHER IN CHOLLA CACTUS

Cooper Tanager (*Piranga rubra cooperi*) and Baird Wren (*Thryomanes bewickii leucogaster*) were also common and their cheery songs were very much in evidence. Most of these species had young. Phainopeplas and Cooper Tanagers were building.

The bird we were looking for was conspicuous by its absence. That was the Mexican Goshawk (*Asturina plagiata*). We walked miles back and forth but did not find a single set, and saw but one bird. A few Cooper Hawks (*Accipiter cooperi*) were seen, but none of their nests were found, either.

No sets worth taking were found. Once, as I stooped under a bush, a little Mexican Ground Dove dropped at my feet and fluttered off. I looked back and there was one young one in a nest against which I had nearly butted my head. Numerous nests of young of the three doves mentioned were examined with the purpose of confirming an observation I had made as to the position of the young

in the nest. The young Mourning Doves always face in the same direction. Those of the White-winged and Mexican Ground Doves always face in opposite directions. It would be interesting to know what position the young of the Inca Dove have in the nest. As I have figured it out, they should both face in the same direction like the Mourning Dove, not to keep the ratio even but because in many respects they remind me very much of the latter. I have never found them nesting and consequently have no data to refer to.

Leaving the forest at about four P. M., a frail bridge over the Santa Cruz River nearly precipitated us into its muddy bottom. Mentioning this reminds me of an interesting phenomenon I have observed in connection with the above named river. Going in we crossed from the left bank to the right and followed a level road for several miles. While walking we found ourselves on the left bank again without having recrossed the river. It proved quite a puzzle to me until I discovered that it disappeared underground and reappeared further down in the shape of springs.

On leaving the forest we stopped to look among some giant cactuses which covered a small hill, for the nest of a pair of Arizona Crested Flycatcher (*Myi-*



Fig. 17. TYPICAL ELF OWL COUNTRY NEAR TUCSON. FLAT MESA, COVERED WITH CREOSOTE BUSHES, AND WITH SCATTERED CLUMPS OF GIANT CACTUS

archus mexicanus magister). They did not seem to have a nest and as I knew it was a little early for them we did not spend much time here, but pushed on back toward Tucson. A short distance from the village of Dos Reales I saw some Western Martins hovering around a large branching sahuaro, so we delayed our departure and went over to them. I examined all the holes carefully, but nest building had not yet begun. However, I secured a nice set of four Gilded Flicker in which incubation had started. I also found a completed nest of Arizona Crested Flycatcher but no eggs. The presence of a snake skin in the nest was of itself sufficient to distinguish this nest from that of an Ash-throat. The birds, also, were present.

Continuing on to Tucson we went through the town and about eight miles farther to the east. Here we camped just in time to get settled before it was too dark to see. Next morning we pushed on a few miles to the Rillito, stopping to look at some giant cactus. A nice set of four Elf Owl eggs was our first reward. Incubation was far advanced, and as I climbed up my ladder the female peeked out at me and snapped her mandibles. She retreated as I got closer

and was on the eggs when I felt in the hole. They seem to exhibit this uneasiness only when the eggs are highly incubated or when there are newly hatched young, and not very frequently even then. When there are no eggs and both birds of the pair are in the nest hole, one is likely to crawl up to the entrance and look out at any intruder. At such times they do not snap their mandibles and, in retreating, gradually fade out of sight with a movement so slow as to be scarcely perceptible.

As I carried my ladder to the next cactus, a Gambel Partridge flushed from under a small mesquite, and glancing that way I saw a nest full of eggs in a slight hollow at the foot of the mesquite and without any protecting cover. The twelve eggs it contained were fresh. One of them had two large claw holes in it and was partially dried up. The bird could be heard calling near by while I was engaged in photographing the nest and eggs.

Climbing the next cactus I cut into a hole around which two Gila Woodpeckers were making a big fuss. There was nothing in it. I think it is their habit to dig fresh holes after raising their brood of young. These fresh holes are not occupied that year but are made use of the next year when the sap has had a chance to dry and form the hard lining which coats the inside of all the cavities. I have found but one fresh hole occupied as a nest.

Farther on I found a set of five Ash-throated Flycatcher eggs just hatching. In the same cactus was a nest with young Mexican Screech Owls, how many I do not know, as when I first put my hand into the hole one bit me. I jerked my hand out to find it covered with bedbugs of all sizes, hundreds of them. How I did hustle to get rid of them, spending some ten minutes of precious time carefully examining to see that not the smallest mite remained to crawl. How the young owls could survive is a mystery to me. I think the hole must have become infected from bats which quite commonly roost in such places.

The next giant had a Cactus Wren (*Helcodytes brunneicapillus couesi*) nest in it. A large open cavity had been stuffed full of the usual mass of grass and feathers which constitutes this bird's nest. There were three well incubated eggs of an unusually dark type. It looked very odd to see this nest in such an unusual situation. There were plenty of normal nesting sites all around, too, and that such a one should be selected would probably have to be laid to the eccentricity of the individual bird.

Crossing the Rillito we went a couple of miles and examined several very tall sahuaros and took another set of four Elf Owl, with incubation far advanced. We also found young of Mexican Screech Owl, Gilded Flicker and Gila Woodpecker.

As we were intending to start for Tombstone that day we could go no farther. Getting back to Tucson, we replenished our oil and gasoline and about ten A. M. started on the homeward trail. A terrific, hot wind was blowing which made driving very unpleasant. The heat caused some tire trouble so we did not stop for any collecting and about five o'clock reached the Empire Ranch again. Leaving here at six-thirty the next morning we stopped to look through some mesquites, and secured a set of badly incubated eggs of the Swainson Hawk (*Buteo swainsoni*), and one of almost fresh Western Redtail (*Buteo borealis calurus*). May 26 is a pretty late date for the latter to have eggs. Both these nests were about fifteen feet up in small mesquites.

In crossing a flat covered with sacaton grass I saw and heard several Meadowlarks (*Sturnella neglecta*), and while watching them heard the unmistakable notes of a Grasshopper Sparrow (*Ammodramus savannarum bimacu-*

latus). I spent some time looking for the nests of the latter but was not successful. There were, apparently, two pairs of them about one hundred yards apart. The occurrence of this bird at this season was very much of a surprise to me. There were numerous Killdeer along a small stream flowing from a spring in this flat, and I walked up so quietly I almost stepped on one before she saw me and left her nest and three pretty eggs. Several nests of White-necked Raven about ready for eggs were found in the mesquites, but we were a little early for eggs. Resuming our journey we crossed through Mescal gap where we saw Scott Orioles (*Icterus parisorum*) and Western Lark Sparrows (*Chondestes grammacus strigatus*), but as we were in a hurry to reach the San Pedro river at Fairbanks for a little collecting we did not stop to look for nests. We arrived



Fig. 18. NEST OF GAMBEL QUAIL, AT THE FOOT OF A MESQUITE BUSH

there about one o'clock, and after lunch put in the balance of the day along the banks of the river. In a small mixed grove of cottonwoods and willows I found two nests of Traill Flycatcher (*Empidonax trailli*) with three fresh eggs in each. Also collected a set of four Lucy Warbler eggs from a hole in a low dead willow stump. Incubation was far advanced. The female was flushed but did not make much of a demonstration and disappeared entirely before I had finished taking a photograph of the nesting site.

Sonora Yellow Warblers were quite numerous and I took one set of three eggs from a nest fifteen feet up in a slender willow. Two nests of young Costa Hummers (*Calypte costae*) were also found here. One held newly hatched young and the other, young about grown.

Crossing the river we spent some time trying to locate the nest of a Yellow-throat (*Geothlypis trichas occidentalis*) but without success. This bird was present all along the irrigating ditches, but the nests were so well hidden I could not locate a single one. Western Blue Grosbeaks (*Guiraca caerulea lazula*) were seen in several places among the willows which lined the irrigating ditches, but it was too early for their nests. Sets of Desert Song Sparrow (*Melospiza melodia fallax*) with four fresh eggs, in a low bush, and Bullock Oriole, five eggs, incubation begun, from a nest hung at the tip of a drooping willow branch, were our next finds.

As I crowded my way through a dense thicket of small willows there was a flutter of wings, and right under my hand was a nest of Mexican Ground Dove with its two pretty eggs, nearly fresh. I had just finished packing them and

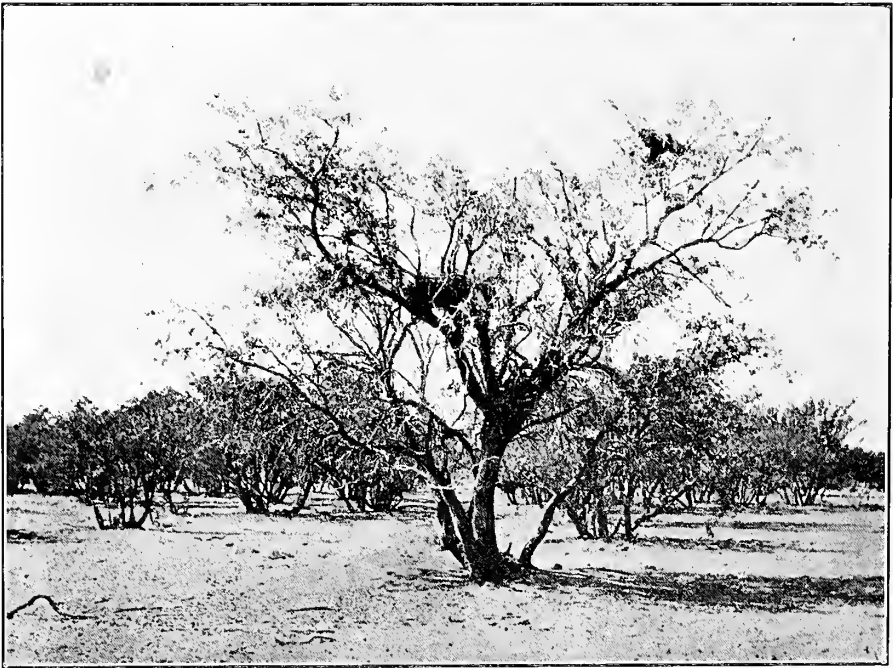


Fig. 19. NESTS OF SWAINSON HAWK IN MESQUITE. THE UPPERMOST IS THE OCCUPIED NEST

started on, when a single "quak" overhead made me look up just in time to see an Anthony Green Heron (*Butorides virescens anthonyi*) leave its nest twenty feet up, in a willow so slender it would scarcely hold my weight as I climbed and collected the set of five fresh eggs. While packing the eggs, I heard a hummer, and there, close by, was a female Costa feeding two young nearly grown.

It was getting late, so we started back toward our machine. On the way, George was delighted to find a nest of Costa Hummer with two fresh eggs in it. The nest was placed five feet up on a drooping branch of a willow. I located a nest of Western Blue Grosbeak almost completed. Vermilion Flycatchers were numerous but nearly all of them had young. Long-tailed Chats and Sonora Redwings (*Agelaius phoeniceus sonoriensis*) were common, but only partial sets of either were found. Abert Towhee was just beginning to nest also. As we

walked along under some tall cottonwoods we flushed a flock of Turkey Buzzards (*Cathartes aura septentrionalis*) which made them their roosting place. There were close to a hundred of them, and the air was black with their broad wings as they swung round and round over the tops of the trees.

We reached the machine just at dusk and after a hasty supper, loaded our baggage and started on the last ten miles of our trip, arriving in Tombstone at nine o'clock.

Our speedometer registered three hundred and seventy-five miles for the trip. While not up to my expectations as a collecting trip, it had been successful enough to be satisfactory, with variety enough to make it thoroughly enjoyable.

PASSERELLA STEPHENSI IN MARIN COUNTY, CALIFORNIA

By JOSEPH MAILLIARD

WITH THREE PHOTOS

UNTIL recently there has been no sufficiently large series of *Passerella* gotten together in California to permit of intelligent comparison of the various individuals a collector might obtain. This lack of material for comparison has left him in the dark as to subspecific determinations. But now, under the care of the Museum of Vertebrate Zoology, University of California, at Berkeley, there is a fine working series consisting of specimens belonging to the museum itself, and to the Grinnell, Swarth and Morcom collections. These contain specimens of *Passerella* taken in many places on the Pacific Coast, from Southern California to as far north as Kotzebue Sound, Alaska, many of them—notably the northern forms and *P. stephensi*—having been taken on their breeding grounds either actually during the breeding season or before the young were old enough to migrate.

Realizing this to be our opportunity, it seemed time for us to undertake the difficult task of identifying the various individuals of this group in our own collection (collection of J. & J. W. Mailliard, San Francisco), the majority of which were migrants or winter residents. Mr. Joseph Grinnell of the Museum of Vertebrate Zoology gave us most generous assistance in this work, and as he had personally collected many breeding specimens his assistance was especially valuable.

It happens that in very cold winters on the Rancho San Geronimo, Marin County, California, we have sometimes found, in a sort of rocky mesa covered with dwarfed cypress, ceanothus and low, scrubby manzanita bushes, on the top of the range, a form of *Passerella* that differed from the commonly found winter forms in having a very heavy bill and being of a much lighter and more grayish coloration. C. A. Allen of San Geronimo (postoffice formerly known as *Nicasio*) took quite a few of these in times past and sold them to eastern collectors as *P. i. megarhyncha*—Thick-billed Sparrow—and as far as we know they have always been so accepted. In fact this form is mentioned by the writer in "Land Birds of Marin County, Cal." (CONDOR, II, May, 1900, p. 62), under *megarhyncha* as "casual visitant," with no comment since, and is now in the Third Edition of the A. O. U. Check-List of North American Birds as such. There should be

some of these specimens collected by C. A. Allen now in the collections of William Brewster, Outram Bangs, Jonathan Dwight, Jr., and perhaps others.

Never having seen true *megarhyncha*, the very large bills of the Marin County individuals allayed all suspicion on our part as to their being anything else, or as to the name not being absolutely appropriate; and so sure had we been that these were of this form that they were not included in the lot taken over to Berkeley for comparison with the *Passerella* series in the museum there.

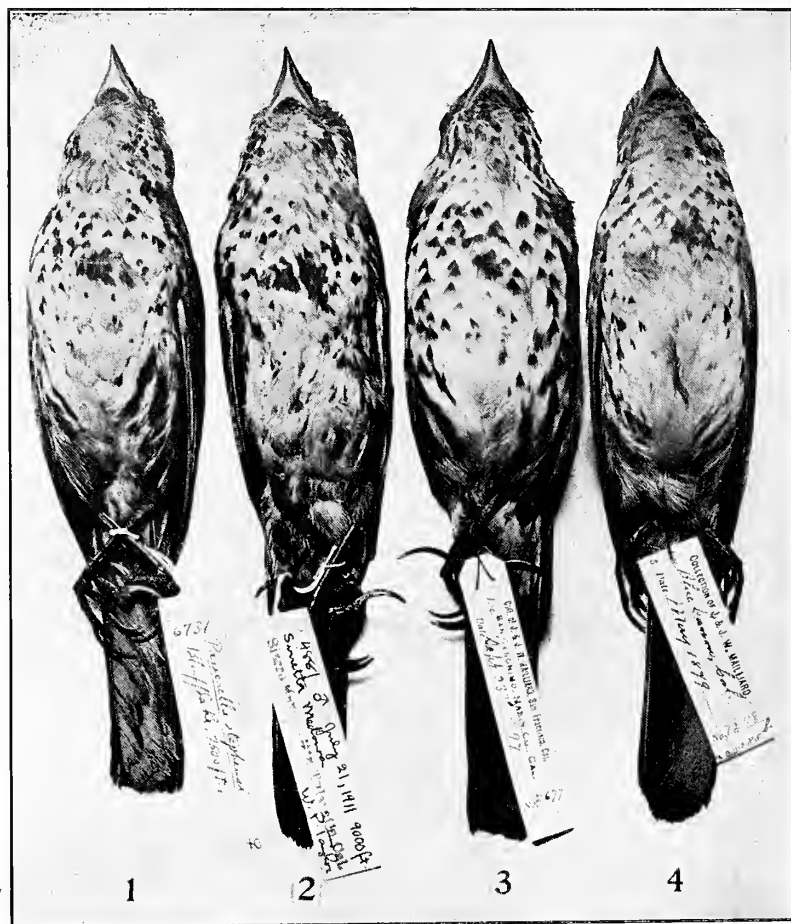


Fig. 20. SPECIMENS OF STEPHENS AND THICK-BILLED SPARROWS: NO. 1, *Passerella stephensi* FROM THE SAN BERNARDINO MOUNTAINS; NO. 2, *P. stephensi* FROM THE SOUTHERN SIERRA NEVADA; NO. 3, *P. stephensi* FROM MARIN COUNTY; NO. 4, *P. i. megarhyncha* FROM PLACER COUNTY
PHOTO BY JOS. MAILLIARD

Our specimens from the Sierra Nevadas and foothills we had called *schistacea*; but on account of the subspecific differences being so entirely relative one must have a starting point for comparison, as bald descriptions often fail to convey the proper ideas. On making comparison with the University of California series we found that while some of our Sierra specimens taken in the fall or winter were actually *schistacea*, the breeding birds were *megarhyncha*.

Upon ascertaining this we compared our heavily billed winter visitants with those in our own collection which were now properly identified, and while the resemblance to *stephensi* came into mind, it was dismissed in accordance with the rule that migrating birds winter south of their breeding grounds (with one or two exceptions, apparently).

Hence we came to the conclusion for the moment that there must be an undiscovered form breeding somewhere to the north of us. Our breeding birds from the Sierras were taken east of us and were true *megarrhyncha*, as above mentioned. So we could not look in that direction for anything to correspond. Now, after taking these to Berkeley and going over them most carefully with Mr. Grinnell, we are compelled to place them with *stephensi*, this, so far as at present known, making another exception to the rule cited above.

The accompanying photograph is intended to show the similarity of the



Fig. 21. WINTER HOME OF STEPHENS FOX SPARROW IN MARIN COUNTY, CALIFORNIA. ROUGH HILLS COVERED WITH DWARFED CYPRESS AND CEANOETHUS AND MANZANITA BRUSH.
PHOTO BY JOS. MAILLIARD

bills of *stephensi* taken on their breeding grounds and one of the examples from Marin County. Also it shows the difference in size between *stephensi* and *megarrhyncha*. No. 1 was taken on July 15, 1905, by Mr. Grinnell, at an altitude of 7,500 feet, in the San Bernardino Mountains, and is in rather worn plumage, but is *stephensi* without any manner of doubt. No. 2, taken by W. P. Taylor, July 21, 1911, also in worn plumage, comes from an altitude of 9,000 feet in the mountains of southern Tulare County, where these birds were found breeding on the west side of the Sierras, and which constitutes the northernmost breeding station of *stephensi*. No. 3 is from Marin County, and is in fresh fall plumage.

These three specimens were selected for photographing on account of the bills being very nearly the same size, and the makeup of the skins being such that the bills lie in almost the same position in all. No. 3 I have fair reason to

believe was raised on the spot where it was taken, being one of a small flock I saw while out deer hunting about the beginning of September. These late summer birds were, in my opinion, a family whose parents had been crippled by either C. A. Allen or myself in the previous winter, and apparently had bred there. They were not discovered early enough in the season to make this certain, but all our other specimens, and all those taken by Allen, were winter specimens, found on the range after heavy, cold storms in the mountains, and especially during cold, snowy weather in Marin County. We have only nine of these in all, and for some reason all are females.

No. 4 in this photograph is a breeding bird from Blue Canyon, Placer County, California, and is true *megarhyncha*. While the bill of this form is larger than any other *Passerella* except *stephensi*, it does not make much of a



Fig. 22. SUMMER HOME OF STEPHENS FOX SPARROW; NORTH SIDE OF TAHQUITZ PEAK, 8500 FEET, SAN JACINTO MOUNTAINS, SOUTHERN CALIFORNIA. MOUNTAIN SLOPES, COVERED WITH MANZANITA AND CHINQUAPIN; THE SCATTERED TREES ARE LODGE-POLE PINES AND SMALL SILVER FIRS. PHOTO FROM COLLECTION OF UNIVERSITY OF CALIFORNIA MUSEUM OF VERTEBRATE ZOOLOGY.

showing alongside the latter, and is introduced into the picture to show how great the difference is.

Up to last summer the range of *stephensi* as known was restricted to the higher altitudes in the southern parts of the state—San Jacinto, San Bernardino, San Gabriel and Tejon mountains, while some fall specimens have been taken in Santa Barbara County. In the latter county Mr. J. H. Bowles thinks they may possibly breed, as he secured some specimens early in September on Little Pine Mountain. But this date is too late to prove that they breed there. During this last summer, however, Mr. Grinnell came across this form breeding, greatly to his surprise, on the west side of the Sierras in Tulare County, his northernmost take being not far from the southern boundary of the Sequoia National Park, and in

about the latitude of southern Monterey County. On the east side of the Sierras there were none, nor was any *Passerella* found as far as the Museum expedition went to the north of this limit. We know that *megarhyncha* comes in still farther north, but between Mt. Whitney and the southern half of Tulare County there seems to be a hiatus as far as *Passerella* is concerned.

The situation now is that *stephensi* has been found breeding as far north as above outlined in Tulare County, possibly wintering in Santa Barbara County, and an occasional winter visitor to Marin County, very much farther north. The distance from its next most northern record to Marin County is something like 175 or 200 miles, at least, with plains, lowlands, rivers or bays to cross, and with absolutely no records between these extremes, making this situation an extremely interesting one, and proving that there is room for a lot of investigating in this line. It also apparently shows another exception to the rule that birds do not winter north of their breeding grounds.

The two photographs herewith presented are to show the similarity of the ground occupied by *stephensi* in its breeding range in the San Jacinto Mountains and in its wintering place in Marin County. Both localities are rocky, waste areas, covered with cypress in Marin County—which is replaced by chinquapin on the breeding ground, though a little of this is found in Marin County also, and with ceanothus and manzanita in both places. In Marin the elevation at which these birds are found is about 1500 feet while in their southern breeding grounds it varies from 7000 to 9000 feet. Singularly to state they are found in Marin County only upon the very tops of the ranges, and never even such a small matter as two or three hundred feet below the tops, although the conditions may seem absolutely the same.

NESTING OF THE CANADA GOOSE AT LAKE TAHOE

By MILTON S. RAY

WITH FOUR PHOTOS BY THE AUTHOR

MICHAEL RYAN, an old settler of Lake Valley, has assured me that he has noted geese nesting at Rowland's Marsh almost every spring since he first came, thirty years ago. Be this as it may, I failed to record the bird on trips through the marsh in 1901, 1902, 1903 and 1906; and while a large, noisy bird like the Canada Goose could hardly be overlooked. I must acknowledge not visiting some of the sections of the marsh where I have since found it rather common.

My first acquaintance with the goose was made on the first of June, 1909, when I came upon a pair at the north end of the marsh. The birds were very wild and kept well out of gun range. I searched the vicinity but failed to locate any nest. Some days later I learned that the keeper of a nearby resort had a short time previously collected a nest of eggs of the goose. These he had hatched beneath a domestic hen, and the young were successfully reared. I feel quite sure it was the parents which I observed, and also feel rather certain it was the only pair in the marsh that year.

On arriving at Bijou, May 20, 1910, I was informed that geese had become more abundant than ever in the marsh, and that residents who lived close by had

been accustomed to make frequent excursions in late April and early May for the purpose of collecting fresh goose eggs for use on the table. Mr. Connolly of Bijou, having a permit, collected a set which he placed to hatch under a hen, but without success. Shortly after, the local game warden issued warning, and the rifling of goose nests was stopped.

Anxious to learn something of their nesting habits, and hoping I might be in time to find a nest or so, May 23 found me rowing up the fresh water sloughs of the marsh, unmindful of the numerous terns, blackbirds, and other swamp denizens, in my quest for a prospective home of the goose. Nor was I long without reward, for when about one hundred feet from a little island that boasted of a few lodgepole pine saplings and one willow, a goose rose from her nest, took a short run, and rising with heavy flight and loud cries, flew out to open water, where she was joined by her mate. The cries of the pair echoed so loudly over



Fig. 23. NEST OF CANADA GOOSE; DEAD MAN'S ISLAND, LAKE TAHOE.
THE EGGS WERE COVERED WITH DOWN BY THE PARENT BIRD
WHEN LEAVING THE NEST

the marsh that it seemed the whole region must be awakened.

Landing on the island I found on the ground, at the edge of the willow, a large built-up nest with seven almost fresh eggs. The nest was composed wholly of dry marsh grasses and down, and measured twenty-two inches over all, while the cavity was eleven inches across and three inches deep. The eggs measured in inches: 3.43x2.21, 3.40x2.21, 3.32x2.25, 3.31x2.22, 3.20x2.25, 3.13x2.25, 3.06x2.15. They are dull yellowish white in color, and in shape vary from ovate to elongate ovate.

After a row of several miles I noticed a gander in the offing, whose swimming in circles and loud honking gave assurance that the nesting precincts of another pair had been invaded. A heavily timbered island, now close at hand, seemed the most probable nesting place. This isle was so swampy that most of the

growth had been killed, and fallen trees, other impedimenta, and the icy water, made progress difficult. I had advanced but a short distance, however, when a goose flushed from her nest at the foot of a dead tree. This nest was very similar to the first one found, and, like it, also held seven eggs, but these were considerably further along in incubation. The set varies only slightly in shape and coloration from the first. The eggs, however, average considerably larger, measuring: 3.71×2.31 , 3.68×2.34 , 3.62×2.26 , 3.48×2.31 , 3.41×2.27 , 3.31×2.25 , 3.18×2.25 .

On the homeward journey, while returning through the marsh by a different channel, I beheld the snake-like head of a goose above the tall grass (for the spring had been unusually early) on a level tract some distance away. Approaching nearer, the bird took flight, and on reaching the spot I found my third nest. As it contained five eggs all on the point of hatching, I lost no time in allowing the parent to return.



Fig. 24. NEST OF CANADA GOOSE; ROWLAND'S MARSH, LAKE TAHOE

Two days later, with Mr. Benjamin Thrasher, I revisited the nest. Mr. Connolly of Bijou held a permit from the Fish Commission, and was desirous of raising some of the young birds, while I saw an opportunity of getting a series, perhaps, of interesting photographs. Thrasher and I came none too soon, for on nearing the spot the goose went flapping over the ground, waterward, with four small goslings weakly following. These latter we caught just before the edge of the slough was reached. Together with the fifth, which, not entirely free from the shell, was still in the nest, they were placed in a box between the soft folds of a woolen blanket, and with much disconsolate peeping, were taken to Bijou.

Under the care of Mrs. Connolly, whose previous experience in raising turkeys proved a great help, the entire number were reared successfully, and soon

became objects of considerable interest about the hotel grounds. The goslings ventured early to a little pond along the stream which courses lakeward from the Bijou meadow, and as they grew older were to be found disporting themselves on the crystal waters of Tahoe or wandering with a complacent and impudent air about the lake village. While not wild, the birds were not particularly friendly, except to Mrs. Connolly, for whom they displayed remarkable affection and whom they would follow almost everywhere.

Unfortunately, before reaching goosehood one of the band was killed by a dog, and another being stolen their number was reduced to three. It soon became necessary to clip the wings of the birds to prevent them from taking flight. Mr. Heinemann took a series of photographs of the young birds at different dates, but unfortunately the entire box of plates proved defective. This we did not learn, however, until some time after our return to San Francisco in July. I wrote to Allen, a photographer of Bijou, who took the picture herewith shown. The birds were then two months old, so one may get an idea of the astonishing rate at which they grew. I may add that Mr. Connolly found he would be unable to keep the birds through the winter and they were shipped by a bird fancier to his home in southern California.

The spring of the present year (1911) was as late as that of the previous year had been early, and as I rowed to the marsh on the morning of May 15 the shores en route were covered with snow, while such a bitterly cold breeze was blowing that even ardent ornithological enthusiasm was somewhat chilled. On reaching the marsh I found snow about everywhere, pond lilies were just budding up beneath the water, marsh grass was timidly peeping up in the bare places where the snow had left, while tules, lying dead and mottled like the naked willows, showed no evidence as yet that the grip of winter had been broken.

In the matter of nesting, notwithstanding the lateness of the season, I found the geese farther advanced than last year; but I attribute the later date last year to the fact that most of those found were no doubt second sets.

I visited practically the same sections as I had previously, and found the birds had increased in numbers. In all I located five nests, three of six eggs, one of seven and one of five. The sets varied from those almost fresh to those in which incubation was well advanced. In situation and composition the nests, some of which are herewith pictured, were in nowise different from those of 1910. In one instance the bird, before leaving, hurriedly covered the eggs with material of the nest after the manner of a grebe.

With the second nest found the parent goose was collected (weight $8\frac{3}{4}$ lbs.), but I was unable to secure the gander, as the bird kept well out of range. Wading in frigid water and over snow-banks with shot-gun and camera, while a most cutting wind blew off snow-covered hills and mountains, was an experience I do not look forward to repeating. At half-past two an approaching storm suggested the advisability of a hasty departure, which I was not reluctant to make.

I had heard of another colony of geese nesting on Dead Man's Isle, in Emerald Bay, ten miles from Bijou, but as rough weather prevailed most of the time on Tahoe I did not take this trip until the 25th of May. Dead Man's Isle is only about an eighth of a mile long, very narrow, rocky and precipitous. Trees are quite numerous, although there is but little apparent soil, and they seemingly rise from crevices between the bare rock. Rather curiously, nearly all the common species found around the lake are represented. In winter, with the freezing over of Emerald Bay, the island becomes virtually a part of the mainland, and in

the spring, when the ice breaks up, such mammals as happen to be on it find themselves isolated; and it is to such of these as find in the surrounding waters an impassable barrier that the animal life is limited.

I found the goose colony to consist of but a single nest, placed on the bare rock at the foot of a giant Jeffrey pine near the water's edge. It was made entirely of pine needles, with the usual down-lining, and held an addled egg, while numerous empty shells lay strewn about. The parents were noticed about half a mile down the bay.

Two days later at Rowland's Marsh, I located another goose nest with the small complement of two eggs, one infertile and one from which the chick was just emerging. The nest was placed against a fallen log, and besides the lining of down was composed entirely of chips of pine bark, a quantity of which lay



Fig. 25. NEST OF CANADA GOOSE; ROWLAND'S MARSH, LAKE TAHOE

near. From the variety of material used in the composition of the nests found, it seems evident that the birds have little or no preference for any particular substance, but use that most easily available.

On the day after the arrival of Messrs. Carriger and Littlejohn (June 5), a tramp was taken along the Little Truckee River. This, ordinarily, is a stream of moderate size, but now, with the rush of water from fast melting snow, had become in places as wide as half a mile. Some distance up this stream we flushed a pair of geese, which from their actions I judged to have a nest somewhere in the immediate vicinity. After a careful search we came to the conclusion that it must lie somewhere on a group of small inaccessible islands now partially submerged by the rapidly rising waters. Littlejohn followed the pair farther up stream, and, losing them for a time, was surprised to see one suddenly take wing

with a loud cry from one of the lower limbs of a massive pine above his head. This was the only occasion on which a bird was seen to alight in a tree.

A long day's work at the marsh on June 9 revealed three more nests. The first of these, one with six eggs, well incubated, was the most perfectly built nest of the goose that I have ever seen, being constructed with all the care that most of the smaller birds exercise. It was made principally of dry marsh grasses. The second nest held a set of five eggs, and was placed by a small willow on a little mound of earth rising in a tule patch in a secluded portion of the swamp. Dry tules entered largely into its composition. In this instance the bird did not rise until we were within twenty-five feet, although they usually flushed at a distance varying from forty to one hundred feet. The last nest, found and collected by Carriger, was deserted, having been flooded by the recent rise of water. The six eggs it contained were added.

In closing I may say the recording of the White-cheeked Goose (*Branta*



Fig. 26. YOUNG CANADA GEESE, TWO MONTHS OLD. RAISED IN CAPTIVITY.
LAKE TAHOE, CALIFORNIA

canadensis occidentalis) at Lake Tahoe (Pacific Coast Avifauna, No. 3, p. 21), not being based, so far as I have been able to learn, on an actual skin, seems very questionable; personally I consider it an error. Regarding the specimen collected, now number 17,224 of the collection of the Museum of Vertebrate Zoology at Berkeley, Mr. Grinnell writes as follows: "As to the identity of the goose, it is *not* the White-cheeked Goose, as has been generally supposed since the early writings of Belding. We have here what is commonly called the White-cheeked Goose (*B. c. occidentalis*) from the Sitkan district. It is slightly smaller and *very* much darker than your bird. Your bird is practically a duplicate of one we have here from southern California, and which we have always considered very close to *B. c. canadensis*. In other words, the breeding goose of the Sierras (and probably of all the lakes of northeastern California) is the Canada Goose (*Branta canadensis canadensis*), or at least the closest to it of any of the described forms."

FROM FIELD AND STUDY

Call Note of the Female California Quail.—In September, 1911, a stroll through the Belvedere garden was suddenly interrupted by the calling of Quail (*Lophortyx c. californica*), and shortly four of these birds sailed across the road, scattering within a few feet of the observer.

One bird lit on the bare, horizontal trunk of a small live-oak and in such a manner as to permit the noting of every plumage detail of an adult hen. A cock soon came strutting along the gravelled path and, properly posing himself, gave the familiar call of "all is well." The supposed hen immediately replied in like manner, and in so doing not only assumed the call pose of the male, but also clearly showed the usual accompanying head and throat movements. The call was repeated several times, and the record is positive.

A similar experience was enjoyed in the same garden a few years ago, and within thirty feet of the foregoing observation, but unfortunately the details of the record were lost in the conflagration of 1906.

Were the females in question favored with individual vocal gifts or were they males in female attire?—JOHN W. MAILLIARD.

The Winter Range of the Yakutat Song Sparrow.—In a report on a collection of birds from the Sitkan district, Alaska, published by the writer (*Birds and Mammals of the 1909 Alexander Alaska Expedition*, Univ. Calif. Publ. Zool., vol. 7, 1911, pp. 90, 91) *Melospiza melodia caurina* was mentioned as a migrant in the region. This impression was conveyed by the sudden appearance of the birds at points where they had been absent a few days before, their presence during a period of about three weeks, and their subsequent disappearance; and I still believe that these particular birds were transients, probably from points farther south.

Soon after the appearance of the paper referred to above, my companion on that trip, Mr. Allen Hasselborg, a resident of Juneau, expressed his belief to me, in a letter, that I was mistaken in my ideas, and that to his certain knowledge song sparrows remained through the winter on the beaches in the vicinity of Juneau and on the adjacent islands. In support of his statement he has just sent me, as a gift to the University of California Museum of Vertebrate Zoology, eight song sparrows collected by himself. These were all taken on Admiralty Island: one at Gambier Bay, November 27, 1911, the others at Pybus Bay, one on December 9, three on December 10, and one each on December 11, 19, and 23, 1911.

In the accompanying letter he describes the beaches where the sparrows were found as of a limestone formation, worn full of little caves and crevices by the action of the water, and thus providing shelters for the birds. He asserts that on all such beaches in the region, song sparrows are to be found throughout the winter; as it happened, the points visited by us early in the season of 1909 did not possess such features, hence the absence of the birds.

He writes that the sparrows were distributed singly along the beaches at intervals of about two hundred yards, were exceedingly fat, and had their stomachs filled with a mass of unrecognizable slimy matter from the beach.

The eight birds collected (nos. 21292-21299, Univ. Calif. Mus. Vert. Zool.) are all examples of the Yakutat Song Sparrow (*Melospiza melodia caurina*). One of them in its brown coloration is not typical, varying decidedly in the direction of *rufina*; but the longer and more slender bill, larger size, and duller browns, all go to indicate a closer relationship to *caurina*.

The facts thus far accumulated make it seem probable that the breeding song sparrow of the Sitkan district, *Melospiza m. rufina*, leaves the northern part of this region entirely in winter. Just how far north it does winter is not known. The Yakutat Song Sparrow (*M. m. caurina*) is shown to winter at least as far north as Juneau, and as it has recently been taken as far south as Humboldt Bay, California (see Grinnell, CONDOR XII, 1910, 174) is, of course, to be looked for at all intermediate points. Its center of abundance during the winter months is not known.—H. S. SWARTH.

Unusual Nesting Date of Mourning Dove.—On December 5, 1911, while pruning an orange tree, I accidentally discovered a nest of *Zenaidura macroura carolinensis* containing two eggs too far advanced in incubation to save. One of the parent birds was

found dead on the ground under the tree, having beyond a doubt been suffocated during the previous week while the grove was being fumigated, as were a considerable number of other birds.—A. B. HOWELL.

Notes from the San Joaquin Valley.—Egret (*Herodias egretta*). In the latter part of October and along until about the middle of November of this past fall (1911) a flock of Egrets (*Herodias egretta*), consisting of some thirty individuals, took up its abode on the Rancho Dos Rios, near the mouth of the Tuolumne River, Stanislaus County, California. The receding flood waters of the summer had left several shallow ponds in the lowlands, and the Egrets would stand in these for hours, feeding, probably, on what few small fish were unable to escape. At other times they would retire to a plowed field and stand around in that for long periods, or perhaps perch on some dead water oaks near this field, giving a beautiful effect of a snow covered tree in summer against a dark green background.

When the water in these ponds evaporated to almost nothing, or perhaps because all the minnows were caught, the Egrets wended their way elsewhere, and but one or two have been in evidence since. This is the largest flock I have ever seen, and it is to be hoped is a sign of the species being on the increase.

Lincoln and Forbush Sparrows (*Melospiza lincolni lincolni* and *M. l. striata*). One hardly associates these sparrows with the idea of flocks, but during the last days of December, 1911, and through January, 1912, a sufficient number of these birds to call a "flock" have congregated in a small area on the Rancho Dos Rios. Usually they are only met with singly or in pairs, but in this particular spot one or two flush out of the tall grass at every step or two. The grass is very rank and three or four feet long, partially fallen, full of seed and damp underneath, being on land that is overflowed every summer at high water.

It is very difficult to get more than a glimpse of the birds in such a place; but four specimens were taken without moving more than twenty feet, as some of them flew into the branches of some scrubby willows and hesitated a moment too long before hiding.—JOSEPH MAILLIARD.

The Evening Grosbeak in Humboldt County, California.—It was on May 7, 1911, early in the forenoon; the day was dark and cloudy, with occasional heavy showers to break the monotony. I was passing through a spruce grove on the very edge of the bay, some six miles east of Eureka. While listening to the scratching of a towhee, my attention was called to the unmistakable call note of the Evening Grosbeak. It was faint, owing to the distance and the rustling of branches.

Traveling in the direction of the call, I soon came under several tall pines, in which were a number of the Evening Grosbeaks. Such a busy lot I had never before seen. They were first hanging to a cone, then hidden in a sort of mistletoe, from which they invariably flew to a nearby branch. There they paused a second and again resumed a position on the cone or within reaching distance of it. This seemed to be their chief attraction.

One flew out in the open air, then circled and lit on a branch not over twenty feet from where I was standing. He seemed to be looking at me, and sat very still for a few moments, then got busy as any of the others, seemingly satisfied with what he had seen. There were upwards of twenty feeding in the tops of the nearby trees.

I secured two specimens, a male and female. They proved to be the Western Evening Grosbeak (*Hesperiphona vespertina montana*).—C. I. CLAY.

The Anthony Vireo (*Vireo huttoni obscurus*).—About four or five years ago while passing over a wooded ravine, I heard an unfamiliar "tchweet, tchweet." At a distance the sound is not unlike "sweet, sweet." On nearer approach it grows more liquid. The bird eluded all my efforts to obtain a description of it, save that the song came from a tiny throat.

Each succeeding spring I followed day after day for weeks my "tchweet, tchweet." I learned that if I once located the song, I might expect it daily in the same vicinity for many weeks. I also learned that if the bird gave its full succession of notes, I might not hear it again for many minutes. The interval might be prolonged into an hour, but the song was sure to come. In the height of the home building season, Anthony may repeat his "tchweet, tchweet," nearly 200 times in succession. Ordinarily twenty or less will satisfy him.

My singer was so tiny and the woods he loved so dense that it was easy for him to elude close investigation, so I came to call him my little "sweet, sweet, sweet." The school children frequently said: "Miss Getty, what bird says, 'sweet, sweet, sweet'?" So I redoubled my efforts to satisfy them and me.

As the land birds of this region, one after another, became familiar to me, by the process of exclusion I concluded that "sweet, sweet, sweet" must be the Anthony Vireo, but I hesitated to give my convictions to others until last summer.

I was making a bird excursion in company with Mr. D. E. Brown, an ornithologist of Tacoma, in the vicinity of that city, when he found the most artistic nest I have ever seen. The dainty bird was upon the nest, and it contained but one egg. This was the 5th of June, 1910. On the 7th, Mr. Brown collected it with three eggs, raising the record by one egg. Up to this time, there had been but one nesting record for this bird—the one described by Mr. Bowles in *Birds of Washington* and in *Hand-Book of Birds of the Western United States*. The nest owned by Mr. Bowles contained but two eggs.

I had been detailed by Mr. Brown to watch a Hermit Warbler's nest for a couple of hours. In this interval, little Anthony came singing several times; so when Mr. Brown found the nest in the vicinity, the secret of "sweet" was truly out.

Another woodland song was just as exasperating in its solution. "Chip, chip, chip", came from the tree tops of the thickets. It usually came to my ears later in the season. That is, I heard it as a summer song. It did not appear to be a call note of the half grown birds, but rather a part of the general mature joy of the woods. So clear and strong was the note that I concluded it must come from the throat of a finch, whose language I had not yet learned.

This summer, while crossing Anthony's haunts, I heard the familiar "chip, chip, chip". Upon the top of a second growth fir sat Anthony repeating over and over "chip", when suddenly he changed to "tchweet". The following day I heard him alternate "tchweet" with "chip," or give two notes of one to one of the other, according to his fancy. He has another sweet note which he sometimes gives when in distress.

On the 23rd of June, 1910, while following a pair of Blackheaded Grosbeaks into a fir thicket of Kirkland, a suburb of Seattle, I came upon an Anthony Vireo nest with the male bird upon it. It contained four eggs, thus raising the record to where it now stands. On the 23rd of June of this year I found another nest about a mile from last year's. It contained four eggs.

In addition to these, I found several nests either unoccupied or just building. The female is exceedingly sensitive. Her peevish "ank, ank, ank", from the thickets may mean one of several things, namely, she may be hunting a home site, building, incubating, or feeding young in the trees. She reminds me of an adolescent school girl who screams upon any and all occasions for the mere pleasure of being actively protected. At her cry of alarm, the male is almost certain to appear. Sometimes he sings to quiet and reassure her. Again he comes almost to the bird-lover, looks him earnestly in the eye as though he would determine the intruder's mission there. A nest found before it contains eggs is likely to be deserted.

Although the Anthony Vireo still deserves the title of "Sphinx of the Forest" given it by Mr. Dawson, we have data enough to arrive at certain conclusions. This year in early June, I saw a pair defending young as large as themselves. At the same time other pairs were building or incubating. This would indicate a late April set, or, two sets a season.

While not limited botanically, the birds appear to favor second growth fir. Of the seven nests seen by me *in situ*, five were attached to fir branches from six to fifteen feet high and from one-eighth to one-half mile from a lake. The nest is most artistically constructed of lichens, usually some species of *usnea*. The lining is made of grass stems. The nest hangs from forking twigs.

Little Anthony is a resident here. His song season is unusually long. The bird clans are gathering preparatory to making their yearly social assemblages or their migrations. While most of them today, August 13, *chatted* sweetly with one another, Anthony *sang* "tchweet, tchweet" or "chip, chip!"—JENNIE V. GETTY.

The Costa Hummingbird.—This bright-colored little bird is, with the exception of the Black-chinned Hummingbird, our most common member of this family in this part of San Diego County. Individuals are first to be noticed in the spring in the forcpart of the month of April, and are most often found on the brushy hillsides where there are plenty

of flowers among which they can disport themselves and from which they secure the nectar and small insects which compose most of their food supply.

Unlike the Black-chinned Hummingbird or their larger cousin, the Anna Hummingbird, they seem to enjoy each other's company, and it is nothing unusual to find them almost in colonies, as many as five nests being located in a radius of fifty feet in an unusually well situated grove of oaks.

For the most part they are quiet; but prior to the nesting season a short time are quite noisy, chasing each other up, down and around through the surrounding bushes and trees. Their note consists of a few sharp squeaks, given out more often when in very rapid flight than otherwise. During the breeding season the male has a very peculiar way of disporting himself before the female. When he locates his mate sitting on a tree, or more often on a low bush, he will ascend to an elevation of about one hundred feet and to one side of the female and will then turn and swoop down at a fearful speed, passing perhaps within a few inches of the watching female and ascending in the air to complete a half circle. This he keeps up until the female becomes impatient and endeavors to escape; then perhaps all that



Fig. 27. FEMALE COSTA HUMMINGBIRD; NEST IN LEMON-TREE AT ESCONDIDO, APRIL, 1911

one will see is a streak, and a sharp squeak or two is heard as they flash up the hillside. The noise that the male makes in doing his fancy dive is easily heard at some distance and quite often heard when the bird himself is not visible on account of the extreme speed at which he travels on his downward plunge.

For nesting places Costa Hummingbirds most commonly select some bush on a cliff, or steep bank on a hillside, but they are also to be found nesting in the orange and lemon groves, in olive trees, in dead cockle burrs in a river bottom or in dead trees; in fact they seem to prefer a dead limb rather than a live one for a nesting site. I think that is due to the fact that the nesting material they use harmonizes better with the dead branches.

The nest is made of plant down and weed leaves principally, bound together with cobwebs and lined with plant down and an occasional feather. A typical nest measures: inside depth, one half inch; outside depth, one and one-quarter inches; inside diameter, three-fourths of an inch; outside diameter, one and one-half inches. The female selects the nesting site and as far as I have observed, does all the work on it, also all of the incubating, the

male being very rarely if ever seen after incubation commences. Incubation takes a period of from nine to ten days and seemingly starts with the first egg, since in several nests watched the eggs did not hatch the same day, but were usually one day apart. In one instance, however, there was an interval of over two days between the hatching of the two eggs. The eggs are two in number, white, and a set taken as typical measures .52 by .32, and .52 by .35 inches.



Fig. 28. FEMALE COSTA HUMMINGBIRD; NEST IN OAK TREE AT ESCONDIDO, MAY, 1911

The young when first hatched look like a couple of black bugs; but they grow very fast and in from ten to fourteen days they leave the nest. They are for a time far from self-supporting. It is difficult to determine just how long they are dependent on their parents. The wonderful construction of the nest is shown by seeing two youngsters almost as large as the old bird occupying the same nest; the nest does not break but keeps expanding to make room as it is needed.—J. B. DIXON.

Early Nesting of Allen Hummingbird at Santa Barbara.—The past winter has been unusually warm and dry in southern California, and so far 1912 has been like mid-summer. Consequently I was not surprised, while walking up one of our many little canyons, to find a nest containing two well incubated eggs of the Anna Hummingbird (*Calypte anna*). This was on February 10, so I certainly was surprised, some hundred yards farther along, to come upon an Allen Hummingbird (*Selasphorus alleni*) gathering nesting material. The nest was soon located, about six feet up in a tiny live-oak, and upon returning on the 13th I found it to contain two fresh eggs. Only a short distance from this one I found another nest of *alleni* on the 13th containing two slightly incubated eggs, while on the 14th Mr. W. Leon Dawson found still another that was ready for eggs. These last two nests were in very typical situations, in blackberry vines that hung suspended over a steep bank on the edge of a running stream. It may be of additional interest to state that the middle of February has previously been my earliest record for the Allen Hummer in its arrival from the south.—J. H. BOWLES.

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EDITORIAL NOTES AND NEWS

The report of the Business Managers for 1911 show the finances of the Cooper Club to be in better condition than ever before. This gratifying condition of affairs reflects great credit upon Messrs. Law and Chambers, as well as upon Mr. A. B. Howell, who has rendered important assistance in the campaign for increased income.

The following is a summary of the Business Manager's report as drawn up by Mr. Chambers:

Cash balance on hand Jan. 11, 1911..	\$ 163.97
Dues received during the year	710.13
Subscriptions during the year	204.10
Received from sale of "Avifaunas"...	28.15
Received from sale of CONDORS.....	124.90
Received from advertising	38.50

Total receipts	\$1269.75
Expenses of printing CONDOR.....	\$ 712.82
Other expenses connected with CONDOR	191.93
Club expenses	31.65

Total expense	\$ 936.40
Balance on hand Jan. 2, 1912	\$ 333.35
Bills owing	151.40
Receipts for future business	154.20

Net balance\$ 27.75

Mr. Adriaan van Rossem is now located at San Salvador, Salvador, C. A., where he will remain for an extended period of bird work. He will pay especial attention to the transients

and winter visitants from northern North America.

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

DECEMBER—The December meeting of the Southern Division of the Cooper Ornithological Club was held on Thursday evening, the 28th, in the office of H. J. Lelande, no. 246 Wilcox Building, Los Angeles, with President Morcom in the chair and the following members present: Messrs. H. T. Bohlman, W. Lee Chambers, F. S. Daggett, A. B. Howell, A. M. Ingersoll, C. C. Lamb, C. B. Linton, Loye Holmes Miller, R. M. Perez, Guy C. Rich, Howard Robertson, George Willett, J. E. Law.

The minutes of the November meeting were read and approved. On motion by Mr. Robertson, seconded by Mr. Miller and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Messrs. Sherwood Coffin, Chas. L. Whitchee, Mrs. L. L. Fox, Miss Sarah R. Atsatt, Miss Elizabeth Heald, Messrs. G. W. Stevens, and Wm. A. Strong, nominated at previous meeting.

Applications were presented as follows: Frank M. Phelps, no. 212 E. 4th St., Elyria, Ohio, proposed by W. Lee Chambers; Lloyd Servis, Stockdale Ranch, Bakersfield, Calif., proposed by J. S. Douglas; Frank H. Renick, 1424 Belmont Ave., Seattle, Wash., proposed by J. Hooper Bowles.

On motion by Mr. Robertson, seconded by Mr. Willett and duly carried, the resignation of Mr. Wm. L. Holt was ordered laid on the table.

The Secretary read the minutes of the Northern Division, also a recent query in regard to the Crow, mailed by Henry W. Henshaw, Chief of the Biological Survey, U. S. Department of Agriculture. The circular asks a number of questions in regard to present status of the crow, and members will do well to procure this circular and furnish such data as they may have.

The meeting then proceeded to nomination of officers for 1912, resulting as follows: for President, G. Frean Morcom, nominated by Messrs. Willett and Lamb; for Vice-President, H. J. Lelande, nominated by Messrs. Robertson and Miller; for Secretary, J. E. Law, nominated by Messrs. Willett and Robertson.

On motion by Mr. Willett, seconded by Mr. Miller, and unanimously carried, a vote of thanks was extended to Messrs. Chambers and Howell for their active and successful work in increasing the membership of the Club.

On motion by Mr. Miller, seconded by Mr. Lamb, a sincere vote of thanks was extended to Mr. Howard Robertson for his work in connection with the establishment of the new

Museum. This has been of exceptional value and is one of the elements that make the future of the Club especially bright.—J. E. LAW, *Secretary*.

JANUARY—The January meeting of the Cooper Ornithological Club was held Thursday evening, January 25, 1912, in Room 246, Wilcox Building, President Morcom in the chair, with the following members present: Appleton, Blaine, Daggett, Fischer, Howell, Alphonse Jay, Lamb, Lelande, Miller, Pinger, Rich, Robertson, and Willett. Mr. Mershon, author of "The Passenger Pigeon," was present as a visitor. Mr. Lelande was requested to act as temporary Secretary. The minutes of the December meeting were read and approved.

On motion by Miller, seconded by Willett, the Secretary was requested to cast the ballot for the officers nominated at the December meeting. Complying with this motion, the Secretary announced that he had cast a ballot for G. Frea Morcom for President, H. J. Lelande for Vice-President, J. E. Law for Secretary, and they were duly declared elected to serve for the ensuing year.

The following applicants for membership, whose names were proposed at the December meeting, were on motion by Willett, duly seconded and adopted, declared members of the Cooper Club: Frank M. Phelps, Lloyd Servis, and Frank H. Renick. Proposals for membership were received as follows: Chester Stock, 492 7th St., San Francisco, Calif., proposed by W. P. Taylor; Harry S. Hathaway, South Auburn, Rhode Island, proposed by F. E. Newbury; Clarence H. Kennedy, Vine Crest Ranch, Sunnyside, Washington, proposed by W. L. McAtee.

Resignations of members Louis J. Mitchell and Chas. Piper Smith were read, and on motion by Robertson, duly seconded and adopted, said resignations were accepted.

The Secretary read the report of Treasurer Chambers for the year ending December 31, 1911. Owing to the care taken in the preparation of the report, which contained a detailed account of all the business transacted during 1912, Robertson moved, seconded by Miller, that a vote of thanks be extended to Mr. Chambers, and that the Secretary forward report to the Northern Division.

A communication was read by Harry Swarth, Secretary of the Northern Division, suggesting that the Southern Division select a committee of five to act in conjunction with a like committee appointed by the Northern Division, for the purpose of co-operating for the protection and conservation of wild life in California. President Morcom selected the

following members to act upon said suggestion: Messrs. Daggett, Robertson, Law, Willett and Lelande.

After an enjoyable discussion upon various bird topics, the meeting was adjourned.—H. J. LELANDE, *Secretary, pro tem*.

NORTHERN DIVISION

JANUARY—The January meeting of the Northern Division was held at the Museum of Vertebrate Zoology, Berkeley, Saturday evening, the 20th, with Vice-President Carriger in the chair and the following members present: Miss Atsatt and Miss Heald, and Messrs. Boyce, Carriger, Gifford, Grinnell, and Swarth. Mr. A. C. Chandler was a visitor. The minutes of the December meeting were read and approved, followed by the Southern Division December minutes. The following were elected to membership: Sherwood Coffin, San Francisco, Calif.; Wm. A. Strong, San Jose, Calif.; G. W. Stevens, Alva, Oklahoma; L. W. Welch, Long Beach, Calif. New names were presented as follows: H. S. Hathaway, South Auburn, Rhode Island, proposed by F. E. Newbury; Chester Stock, San Francisco, proposed by W. P. Taylor; and Clarence H. Kennedy, Sunnyside, Washington, proposed by W. L. McAtee.

The following motion was made by Mr. Taylor, seconded by Mr. Grinnell, and duly carried: That five persons be appointed by the President to serve for the Northern Division as a standing Committee on the Conservation of Wild Life, and that the appointment of a similar committee be suggested to the Southern Division. The functions of such a committee to be, in general, as follows:

(1) To co-operate with the State Fish and Game Commission in its efforts to secure better legislation and better enforcement of existing statutes, with regard to the wild life of the state.

(2) To co-operate with the better element of the sportsmen's organizations in their efforts to maintain a far sighted conservation policy with regard to game animals.

(3) To co-operate with the Audubon Society or other organizations interested in the protection not only of game but also of non-game birds and animals.

(4) To co-operate, as far as the State of California is concerned, with the Federal Bureau of Biological Survey in its work along lines of wild animal conservation.

(5) To work at all times to the end that an enlightened public sentiment with regard to the subject be stimulated and brought to bear upon problems arising in connection with the conservation of wild life.

Mr. Grinnell spoke on the distribution of hummingbirds in California, illustrating his talk with specimens, and with maps showing the ranges of the breeding species.—H. S. SWARTH, *Secretary*.

FEBRUARY—The February meeting of the Northern Division was held at the Museum of Vertebrate Zoology on Saturday evening, February 17. President Coggins was in the chair, and the following members present: Miss Atsatt and Miss Heald, and Messrs. Carriger, Gifford, Grinnell, Taylor, and Swarth. The minutes of the January meeting were read, followed by the Southern Division January minutes. The following new members were elected: H. S. Hathaway, Chester Stock, and C. H. Kennedy. New names presented for membership are: Miss Anna Hcad, Berkeley, presented by Mr. Grinnell; Miss Margaret W. Wythe, Oakland, presented by H. C. Bryant; and George E. Stone, South Pasadena, presented by W. P. Taylor.

Mr. Taylor, Chairman of the Committee on Conservation of Wild Life, gave a verbal report of the activities of the Committee. The election of editor and business managers of THE CONDOR for 1912, nominations having already been made by the officers of both divisions, gave the following results: Editor, J. Grinnell; Business Managers, J. Eugene Law and W. Lee Chambers. A letter was read from the secretary of the Pacific Coast Association of Scientific Societies, appointing W. P. Taylor, representing the Cooper Club, a member of a committee acting for the Association as an auxiliary in promoting conventions of scientific and learned organizations in San Francisco during the Exposition year 1915.

Mr. Grinnell gave a brief talk on present conditions in the Imperial Valley, and the birds to be seen there, as observed on a recent visit, while on the Agricultural Demonstration Train. Adjourned.—H. S. SWARTH, *Secretary*.

COMMUNICATION

APROPOS THE NEWLY ESTABLISHED PERMANENT COMMITTEES OF THE COOPER CLUB FOR THE CONSERVATION OF WILD LIFE.

Conservation has by this time come to represent in a fairly definite manner certain issues of great importance to the best good of the people, and it is coming to be realized that the principle should be extended to cover other things than forests and water power.

Not the least of these is the wild-life of the community. The presence within a state or

country of native species of birds, mammals, and fishes, while it is, on the one hand, a distinct esthetic asset, has on the other a definite money value. In a commonwealth like California the possibilities of the ideal conservation of song and game birds and of game and non-game mammals and fishes are tremendous. Our wild animals include some of the most attractive of game species, as well as scores of other forms intrinsically of the highest scientific and popular interest.

The history of California shows, as does the history of almost every other state and nation, a woeful lack of foresight with regard to the conservation of natural resources in general, and of game in particular. A short life-time (fifty-five years) ago, the flesh of the prong-horned antelope was the cheapest meat in San Francisco, sea otter skins were to be had comparatively cheaply, and elk were not uncommon throughout Northern California.

The advance of civilization tends, of course, to crowd out various wild species. This makes the problem of their perpetuation more difficult, and consequently more important to be considered.

Among the agencies which have worked for the conservation of wild life is the State Fish and Game Commission. This organization has done good work in a particularly difficult field. But no state commission can go ahead of public sentiment, which often appears not to be particularly interested in the problems which here concern us.

It would seem that the Cooper Ornithological Club has a distinct opportunity to serve the state along these lines. The committee appointed by the Northern Division should co-operate with the committee of the Southern Division, to the end that the entire Club may work efficiently for (1) a more widespread interest in the conservation of the wild life, (2) enlightened game legislation with regard thereto, and (3) better enforcement of protective laws already existing.

Furthermore, the interest of the Club in the matter should be broad enough to include not only birds, but other forms, and should be so keen as to sympathize with and actively support similar work carried on elsewhere, as by the Federal Bureau of Biological Survey.

The possibility of accomplishment of these permanent committees is large. When it is considered that the Cooper Club is one of the most promising bird organizations in North America, and that it includes men of influence in many fields of commercial and scholastic activity, it must be conceded that it may become a potent factor for progress along the lines indicated.—WALTER P. TAYLOR.

For Sale, Exchange and Want Column.—In this space members of the Cooper Club are allowed one notice of about 35 words in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. Notices must be written plainly, on one side only of a clean sheet of paper. For this department address W. LEE CHAMBERS, *Eagle Rock, Los Angeles Co., Cal.*

FOR SALE.—As new prepaid: O. & O. vols. '86, '87, '88, '89, '90, '91, bound half *morocco* two vols. in a book, the lot for \$4.50; Proceedings of the Biological Society of Washington, vols. 15, 16, 17, 18, bound *cloth*, per vol. \$1.25; North, American *Wild Fowls* (Elliot) \$1.50; " " *Shore Birds* " \$1.50; Camps and Cruises of an Ornithologist (Chapman) \$1.75.—W. L. BURNETT, *Fort Collins, Colorado*.

WANTED.—Skins of Hudsonian Godwit, Eskimo Curlew and certain of the Grouse; Parts I and II "Birds of North and Middle America", paper covers preferred.—A. B. HOWELL, *Covina, California*.

WANTED.—The Auk, vols. 2 and 3; The Nidologist, vol. I, no. 2; The Osprey, vol. III, no. 10, vol. IV, nos. 2, 3, 5, vol. VI, nos. 3, 4, 5, 6.—CHARLES R. KEYES, *Mt. Vernon, Iowa*.

FOR SALE.—Nidologist, vols. 1-4 complete with indexes, bound in one volume; Cook's Birds of Michigan, paper; Pacific Coast Avifauna No. 4, paper; 15 extra copies Nidologist, different, some rare; 28 extra copies of various numbers Osprey including 4 of vol. I, no. 1. All perfect condition. No exchanges.—E. S. ROLFE, *193 E. 10th St., Eugene, Oregon*.

WANTED.—Of the Utica Oologist, the following back numbers for which I will pay the highest cash price, viz: Volume II, nos. 1, 2, 3; vol. III, nos. 9, 12; vol. IV, no. 7.—R. M. BARNES, *Lacon, Ill.*

WANTED.—Cosmopolitan for July, August, September, October, and November, 1910. Will pay a reasonable cash price.—EARLE R. FORREST, *261 Locust Ave., Washington, Penn.*

FOR SALE.—Mrs. H. R. Taylor has a few more books to dispose of at greatly reduced prices.—MRS. H. R. TAYLOR, *Alameda, Calif.*

NOTICE.—The Power Boat Flyer will make an extended trip to Lower California waters about April 1st, 1912 (sailing date subject to pleasure of passengers); two berths taken; six more open. Collectors desiring to make the trip notify us as early as possible. We will visit any locality desired by collectors while in these waters. The Flyer is 3 years old, 45 feet long, 11½ feet beam. Equipped with sails and a new 30 h. p. 3 cyl. Standard Gas Engine; speed (3 tests with engine half open), 86 miles, 9½ hours. Charge for this trip very reasonable. This is a trip worth while. Write C. B. LINTON, *125 W. Ocean Ave., Long Beach, Calif.*

WANTED.—Wilson Bulletin 2, 4; The Oologist, Utica, N. Y., vol. I complete; II, 1, 2; III, 8, 9; IV, complete; V, complete; Bulletin of the Cooper Ornith. Club, vol. I, odd nos. W. LEE CHAMBERS, *Eagle Rock, Los Angeles Co., Cal.*

WANTED.—Ornithologist & Oologist, vol. 13, no. 2, Feb. 1888; Osprey 3, no. 7. O. WIDMANN, *515 Von Versen St., St. Louis, Mo.*

FOR EXCHANGE.—O. & O. vol. 17, nos. 1 to 9 inclusive; Journ. Maine Orn. Soc., vol. 2, no. 1; Birds of Wheeler Survey; 34 publications of the California Academy of Sciences; Catalog of Water Birds of California, Bryant; Catalog of Birds of Lower California, Bryant; Additions to Ornithology of Guadalupe Island, Bryant. Also 391 1-4, 122 5-4, 346 1-2. Will exchange above for sets. Send lists. H. F. DUPREY, *Dixon, Calif.*

WANTED.—Audubon Ornith. Biography, vols. 2, 4, 5; Nuttall, Manual, 1840, 2 vols.; Bull. Cooper Club, I, no. 1; Bird Lore, vol. II, no. 2; and others. Also bird skins. B. H. SWALES, *Grosse Ile, Mich.*

FOR EXCHANGE.—A. O. U. Nos. 1 1-4, 1-4; 11 1-2; 16 1-1; 44 1-3; (85) 1-1; 202 1-4; 201 1-5; 263 1-4; 329 1-2; 339 1-3; 342 1-2; 346 1-2; (359.1) 1-5; 389 1-4; 390 1-7; 394c 1-5; 412a 1-7; 467 1-4; 477 1-5; 487 1-4; 498 1-4; 498c 1-2; 511b 1-4; 517 1-3; 529 1-4; 540 1-4; 549 1-4; 550 1-4; 560 1-4; 563 1-4; 581 1-4; 587 1-3; 598 1-4; 608 1-2; 624 1-4; 648a 1-3; 659 1-4; 673 1-4; 674 1-5; 681 1-4; 687 1-4; 704 1-4; 721 1-6; 735a 1-4; 755 1-4; Wandering Albatross 1-1; Rock-hopper Penguin, single; King Penguin 1-1, end blown. JOHN H. FLANAGAN, *10 Weybosset St., Providence, R. I.*

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Volume XIV

May-June, 1912

Number 3



W.K.F.

COOPER ORNITHOLOGICAL CLUB



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SOME NORTH-CENTRAL COLORADO BIRD NOTES

By EDWARD R. WARREN

WITH MAP AND TWELVE PHOTOS BY THE AUTHOR

DURING the summer of 1911 I made a somewhat extended wagon trip through the north-central portion of Colorado, more especially for the purpose of collecting and studying mammals and birds, though other things were not neglected. I was accompanied by Mr. H. R. Durand as assistant and general factotum, and he proved every bit as satisfactory in those capacities as he was in 1909 when he was also with me. Mr. Durand was not with me the first few days, as he had the bad luck to contract the measles shortly before the starting day, and until he recovered I had William Newcomb of Colorado Springs for a companion, who also proved himself all right. As will be seen by the accompanying map my route was decidedly crooked. All told I traveled about 700 miles.

Leaving Colorado Springs May 18, I first went northward onto the "Divide", as the watershed between the Platte and Arkansas Rivers is commonly called. This is a yellow pine region, over 7000 feet elevation, and the surface is what is usually termed rolling. Camping at Elbert the night of the 19th, we woke the next morning to find snow on the ground and a howling blizzard in full action. We did not move camp that day, or the next either, though it had somewhat moderated then. From Elbert we traveled eastward, but not quite as I had planned, for I was obliged to swing off to the southward by Ramah instead of taking a more direct route to River Bend and Cedar Point, my first objectives. I did not do a great deal of collecting along here as it was largely the dry plains region, and without much of interest. Often we had to make long drives before we could find a camp with feed and water, and picked up what fuel we could along the road.

Reaching River Bend the 24th I went to Cedar Point, a few miles north-westerly, the next morning, and camped, having previously got into communication with Durand, and found out when he could join me. Cedar Point is the highest elevation in that locality, a few hundred feet higher than the surrounding country.

It may be described as a sandstone mesa, with a few scattering cedars, sufficient to give it a name. There evidently used to be more, but they have been cut for fuel and fence posts. My reason for coming here was to catch some wood rats, and ascertain the species. Merritt Cary of the Biological Survey had written me of having found signs of them there and of course I had to investigate them. The species proved to be *Neotoma baileyi*, as Cary had surmised. There were a number of species of birds about here, but nothing special.

The morning of the 28th we broke camp and drove to River Bend, where Newcomb took the train for home, and a little later, when the train from Denver arrived, I was joined by Durand and also Robert B. Rockwell, recently Associate Editor of *THE CONDOR*, who was taking a few days holiday. Gathering up the

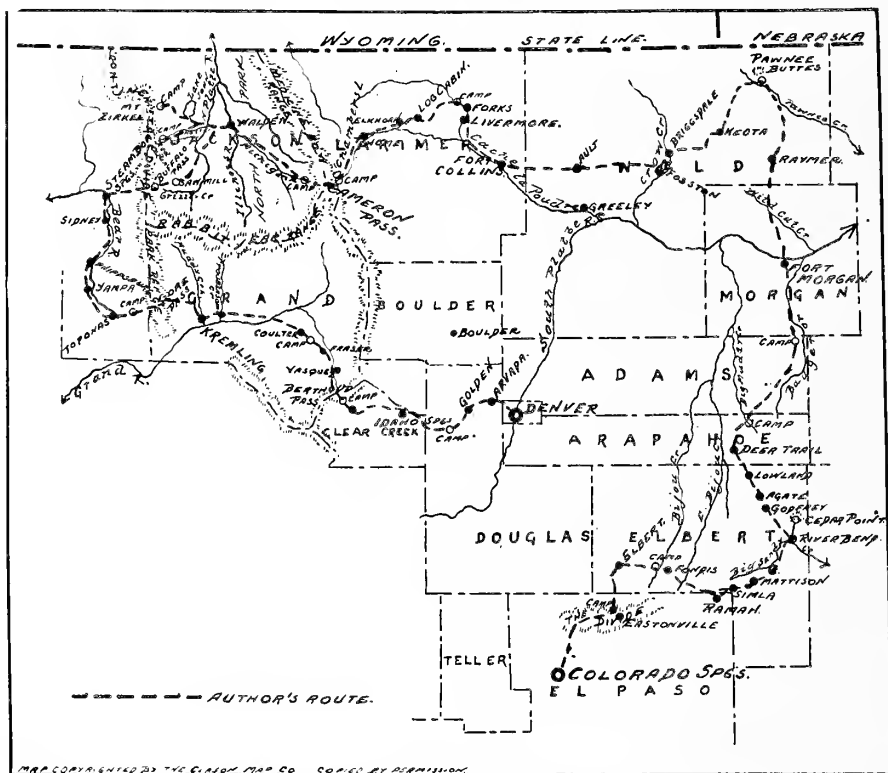


Fig. 29. MAP SHOWING PORTION OF NORTH-CENTRAL COLORADO TRAVERSED BY THE AUTHOR IN THE SUMMER OF 1911

impedimenta of the new arrivals we soon got under way, going westward, the road following parallel to the Kansas Pacific tracks. I may as well say right now that we three immediately started to have a good time, and I think we succeeded, though a stranger might have thought at times that a free fight was going on in the wagon, but that was merely one of our ways of enjoying ourselves. Incidentally we did a little collecting, made a good many notes, took some pictures, and so did not entirely neglect the scientific side.

The middle of the afternoon of the 29th we reached Deer Trail, got directions as to the road across country to Fort Morgan, and drove some ten miles farther, camping at Big Muddy or Deer Trail Creek. We saw our first young Mountain

Plover that afternoon, and wished very much to photograph it, but the wind was blowing a hurricane, and we did not attempt it.

The 30th we drove over a rolling prairie country, populated by millions of prairie dogs, as indeed had been the region through which we had already passed. It was a dry barren country, and bird life was pretty scarce. Perhaps the most interesting things we saw that day were three antelope, the first my companions had ever seen wild. In the old days I suppose one would have seen hundreds, if not thousands, in that same region, to say nothing of the buffalo.

There were a few ranches by the water courses; these were the older ones; other newer ranches had been taken up by settlers who hoped to make a go of dry



Fig. 30. COLONY OF CLIFF SWALLOWS ON THE SANDSTONE BLUFF FORMING THE BANK OF PAWNEE CREEK, WELD COUNTY, COLORADO

farming. These were dependent on wells for water, and some did not even have the well, but hauled their water from the wells of those who were more fortunate. About some of the old ranches birds were fairly abundant, as there were usually some trees. We camped that night near a well, which we emptied by the time we left next morning. We traveled on the 31st over country similar to that of the day before, varying the monotony of the proceedings by digging out a kangaroo rat. It was captured after an exciting chase, and caged, and Rockwell carried it to Denver with him that evening, intending to immortalize it with the camera. Instead, when he posed it, and asked it to look pleasant, it died of fright.

We reached Fort Morgan late that afternoon, just in time to load Rockwell

on the train and send him back to Denver. We were sorry to have him go, but he thought his business would go to the wall if he stayed away from it any longer, so we had to part. We stayed in Fort Morgan until Saturday, June 3, partly waiting for mail, and there were also a lot of little odd jobs I wished to get off my hands before going farther. We were camped not far from the fair grounds, and there were many trees about these, and consequently many birds, so that we were able to put in some time studying them. There is always one drawback about camping in a town, and especially a railroad town, and that is one never dares to leave his camp unprotected. Someone must always stay there, which of course limits the opportunities for study. The weather was decidedly warm here, up to the middle of the eighties in the shade.

June 3 we left, headed for Pawnee Buttes, with murderous designs on more wood rats, and as before, with Cary to blame for my going; for, as he had taken a species (*Neotoma rupicola*) there, which I had not taken, I felt bound to add it to my collection. Aside from this, the Buttes are a well known locality for fossil mammals of Tertiary age, and the American Museum has made large collections there. We reached there the afternoon of the 4th, camping at Raymer the night of the 3rd.

The fossils are in a soft friable sandstone, apparently somewhat argillaceous, which is easily eroded by wind and weather, and consequently worn down to the general level with the exception of the Buttes and a line of bluffs to the west and north, which, having a capping of hard conglomerate and sandstone, have resisted the elements better. About the East Butte was a small colony of White-throated Swifts, and on a sandstone bluff forming the bank of Pawnee Creek at one place was a colony of Cliff Swallows unusually well situated for photographic purposes. We did not devote as much time to the birds as we might, partly because we were interested in fossils just then, and partly because on the last three afternoons of our stay we had tremendous wind and dust storms, making it almost impossible to do any field work, especially the day before we left, when it was about as bad a storm of the sort as I have ever seen.

We left June 10, driving nearly thirty-five miles, and camping at Crow Creek, near Briggsdale, a newly started town. The next day we had a very interesting time. We took pictures of rabbits, cottontails and a young jack, a Meadowlark's nest, Nighthawks, and a young Mountain Plover. The prairies were yellow in some places with the blossoms of the prickly pear (*Opuntia*), and in others white with the evening primrose (*Oenothera*). The day was hot, and we saw many birds, Lark Sparrows, Horned Larks and Mountain Plover, squatting in the shadows of the fence posts to get what relief they could from the heat. A few miles east of Ault we began to get into the irrigated district, and the green fields and trees certainly did look good to us after passing over so much of the dry plains. Stopping for the night at Ault we went as far as Fort Collins the next day, reaching there early in the afternoon. I at first tried to find W. L. Burnett, who is now Curator of the Museum of the Agricultural College, but he happened to be out of town for the day, so I hunted up a camping place on the north side of the town by the Cache la Poudre River, and we made ourselves comfortable. Late in the afternoon Burnett came and paid us a visit. We spent the whole of the next day there, leaving on the 14th, accompanied by Burnett who wished to get a taste of the simple life. He got it that night when a sudden shower came up and nearly drowned him in his bed.

A few miles after leaving Fort Collins we reached the foothills and the

yellow pines, and the next day were in a region where the country rock was mostly granite. The afternoon of the 15th we camped a couple of miles east of Log Cabin P. O., and put out some mammal traps. The following day we stayed right there, for it rained all day, and there is no fun traveling in the rain. There were some outfits of movers camped not far from us, and I have a suspicion they must have thought we were crazy from the capers we cut, but something had to be done to pass the time. Burnett's time was up the next day, and he only went with us a few miles, when we met the stage to Fort Collins, and he had to return with it, to our mutual regret. We went on past Elkhorn Post Office, and a little beyond drove down the long Pingree Hill, as it is called, a good piece of mountain road building, and reached the West Fork of the Cache la Poudre at Rustic, another post office. We turned up the river, which



Fig. 31. VIEW BETWEEN MOUNT ZIRKEL AND BALDY, LOOKING TOWARD UTE PASS

is in rather a narrow valley or canyon here; no chance to turn out to camp, or feed the horses. I bought some hay at Home, a little summer resort, and a couple of miles farther on we finally found a place to camp. Not that it was late, but I like to stop early when I can, so as to have an opportunity to look about, set traps, and collect.

We were now really beginning to get into the mountains, to the great pleasure of us both, for the plains region did not specially appeal to either one of us. The road next morning became more and more wild and picturesque, and we enjoyed the fine canyon down which the river rushed and tumbled. I made much use of the camera that day. The road was rough and steep, but we reached Chambers Lake, our destination, early in the afternoon, and camped a mile or so beyond. The altitude here was 9100 feet; the hills were mostly covered with lodge-

pole pine of various sizes from the smallest trees just starting, in comparatively lately burned tracts, to the large trees many years old. There was also a certain amount of ground without any green timber, only the dead burnt standing or fallen trees. We stopped at this camp until the 22nd, having much rain. Collecting was not specially good here. Then we crossed the Medicine Bow Range by Cameron Pass into Jackson County, which is in the North Park. The altitude of the Pass I made 10,150 feet. This was a fine drive as the scenery was grand at many times. We were stuck in a snow bank a few minutes, and found flowers growing beside snow banks. The road down the North Park side was quite steep, and in need of repair in places. Several times it was necessary to "ride the high side" to keep the wagon from overturning where the road was washed out on one side.

We dropped down a few miles and made camp by a rushing branch of the Michigan River, where there was plenty of good grass for the horses. I called this camp "Cameron Pass Camp". Here we made our first acquaintance with North Park mosquitos, and did not get rid of them until over a month later, when we crossed to the Routt County side. We stopped here until the 25th, when we

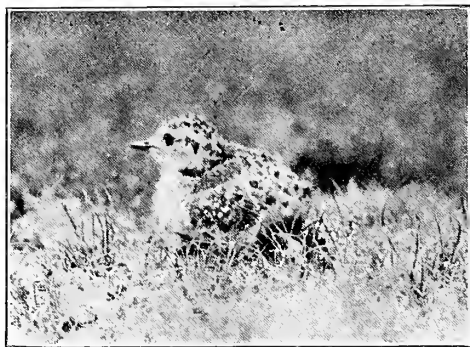


Fig. 32. YOUNG MOUNTAIN PLOVER,
ABOUT A WEEK OLD. AULT,
COLORADO, JUNE 11, 1911

started on and reached Walden the next day. This is the county seat, and the only town of any size in the Park. It is situated on the sage brush plain by the Illinois River, though to the westward is an alkali flat with greasewood, sloughs, and a few small lakes. The predominating birds of this sage and greasewood region were Sage Thrashers and Brewer Sparrows, which were abundant. The altitude of Walden is 8275 feet.

Mosquitos were there by millions. Much hay is raised in the North Park, the meadows are irrigated, and the water kept on from early summer until time

to cut hay, and the result is that often one cannot go about with any comfort without a headnet.

We remained at Walden until June 30, when we left, intending to go to Red Canyon, of which we had heard as probably being a good place to work. It would take too much space to tell of our mishaps of that day, how we got on wrong roads, stuck in the mud, and finally did not get to Red Canyon at all, but landed at Hell Creek. We did not know where we were until next day, when we went exploring on foot, found a saw mill, got some information, walked over to Red Canyon and explored that a little. It was not quite what I wanted, for I was looking for a place where I could get to timberline without too much trouble, and it would have been too long a walk there, even though I might have camped much nearer to the Canyon than we were at the time.

However, we stayed at Hell Creek until July 5, celebrating the Fourth with a feast of wild strawberries. Our next camp was Lake John, or rather at Brand's ranch, close by. This is a large lake, of irregular shape, perhaps two miles long, and nearly as wide, altitude 8200 feet. There were a considerable number of

water birds here, but not many species. It did not strike me as a particularly favorable place for nesting, as with the exception of a patch of rushes at the southerly end, there was but little cover. Along the west shore were a few willows, while the other parts of the shore along which we walked were somewhat steep with but little along the water's edge, and the ground back from the water covered with greasewood. Aside from the species I will mention beyond, Cary (North American Fauna No. 33) speaks of finding the Canada Goose and Shoveller Duck breeding here, as well as the Wilson Phalarope. The latter we saw elsewhere, but not at Lake John.

Leaving this point on the 8th, we started for a place the Brands told us of, in the mountains of the Continental Divide. We managed to get on a wrong road, but landed on our feet, for we found as good a place for our work as there was about there, at the foot of Mt. Zirkel, on what is called the Ute Pass Trail. This was once a trail over which cattle were driven to the Routt County side for the summer range. Mt. Zirkel is the highest mountain in this part of the Continental Divide, its altitude being 12,000 feet.

Our camp was located as far up as we could get the wagon, at an altitude of 9275 feet; at that date there was snow in patches on the slope of Baldy Mountain almost on a level with the camp, while in the timber and high up on the mountain was much more, often in good sized fields. Here it was not much more than spring, as such flowers as marsh marigolds (*Caltha rotundifolia*) and dog-tooth violets (*Erythronium parviflorum*), which are the first to bloom in such regions,



Fig. 33. YOUNG MOUNTAIN PLOVER, A DAY OR TWO OLD. RAYMER, COLORADO, JUNE 4, 1911

were in their prime beside the snow banks. The trees were Engelmann spruce and balsam fir (*Abies lasiocarpa*), with aspens on the lower slopes. Near and above timberline alpine flowers of various species were blooming in profusion. We strung a line of traps from near camp almost to the summit of the mountain, and while the catch was not large some rather good records were made. Brown-capped Rosy Finches and Pipits were common, and a single Ptarmigan was seen.

Here we stopped until the 17th, and then returned to Walden for supplies and mail, staying there until the morning of the 22nd, doing a little more collecting, and then leaving for Buffalo Pass and Steamboat Springs. We reached an old saw mill about five miles below the summit of the pass late that afternoon, and camped for a couple of days. This is frequently referred to beyond as "the Buffalo Pass saw mill." This was among the lodge-pole pines. The five miles of road to the summit was badly washed and very rough, but taking our time, the horses made it up without much trouble, and we made another camp just on the Jackson County side of the pass, at an elevation of 10,400 feet.

Here we were among the Engelmann spruces again, but the surrounding

country did not reach as high an elevation as at our Mt. Zirkel camp, and there were many open grassy slopes. It was beautiful about there, and we enjoyed our few days' stay. A good find here was a family of Three-toed Woodpeckers nesting close by, of which more in its proper place. On the 28th we crossed the Divide and dropped nearly 4000 feet down to Steamboat Springs, altitude 6680 feet, at this place making a connection with the route followed on my trip in 1907. I decided to drive from here to Denver v'a Berthoud Pass. This route took me over some of my 1907 ground, and over some that was new. I had never been over the Gore Pass in the Park Range, and from Sulphur Springs to Denver it was all new. As I wished to reach Denver by a certain date we traveled rather steadily and had little or no time for collecting, our observations being confined to such things as we saw along the road. We reached Denver early on the morning of the 8th, having camped at Arvada, a few miles outside of the city, since noon of the previous day, packing up the outfit so that there would be as little as possible of that sort of work to do when we did get into town. I went direct to a sale stable, where the wagon and horses were sold by auction the next day, while the balance of the outfit was shipped home by freight.

One thing which I noticed all through the trip was the great scarcity of such birds as warblers and vireos. As these notes show, we saw but few of these birds, either species or individuals. I do not know how to account for it. I think we are both good enough collectors and observers to have found the birds if they had been present. They should have been at some, at least, of the localities we visited.

1. **Colymbus nigricollis californicus.** Eared Grebe. This species was seen at three localities in the North Park. At a lake a few miles south of Lake John at least two were seen. At Lake John they were by far the most common of the water birds, and I estimated that at least 90 per cent of the water birds seen were grebes. They were nesting in a patch of rushes at the southeast corner of the lake, where we found at least twenty nests close together, and the birds seemed to have but just begun laying. The largest set in this group consisted of but three eggs, which were perfectly fresh. Some little distance from these nests we found another which contained nine well incubated eggs with the eggs covered, all the others having been uncovered. We saw many of the birds swimming about as we pushed the boat around through the rushes. This was July 7. On the 17th we saw two grebes with broods of young on a small lake on a ranch southeasterly from our Mt. Zirkel camp.

2. **Larus delawarensis.** Ring-billed Gull. A few seen about Lake John July 6.

3. **Hydrochelidon nigra surinamensis.** Black Tern. Three or four Black Terns were seen flying about the rushes on Lake John, July 7. We searched everywhere for their nests, but unsuccessfully.

4. **Mergus americanus.** Merganser. A female of this species was seen above the falls in Red Canyon, July 1.

5. **Anas platyrhynchos.** Mallard. May 25 I flushed a male from a slough between Cedar Point and River Bend; two Mallards were seen July 5 at a ranch on Red Canyon Creek, and a few were seen on Lake John on the 6th. Cary mentions finding them breeding at this place.

6. *Chaulelasmus streperus*. Gadwall. Gadwall seemed to be the most common ducks on Lake John, and quite a number were seen. July 6 a female was seen accompanied by seven young, perhaps one-quarter grown.

7. *Querquedula discors*. Blue-winged Teal. A few were seen on Lake John.

8. *Erismatura jamaicensis*. Ruddy Duck. A male seen on Lake John.

9. *Nycticorax nycticorax nævius*. Black-crowned Night Heron. While camped at Fort Collins, June 13, several were seen flying overhead, and one was seen at Lake John July 7.

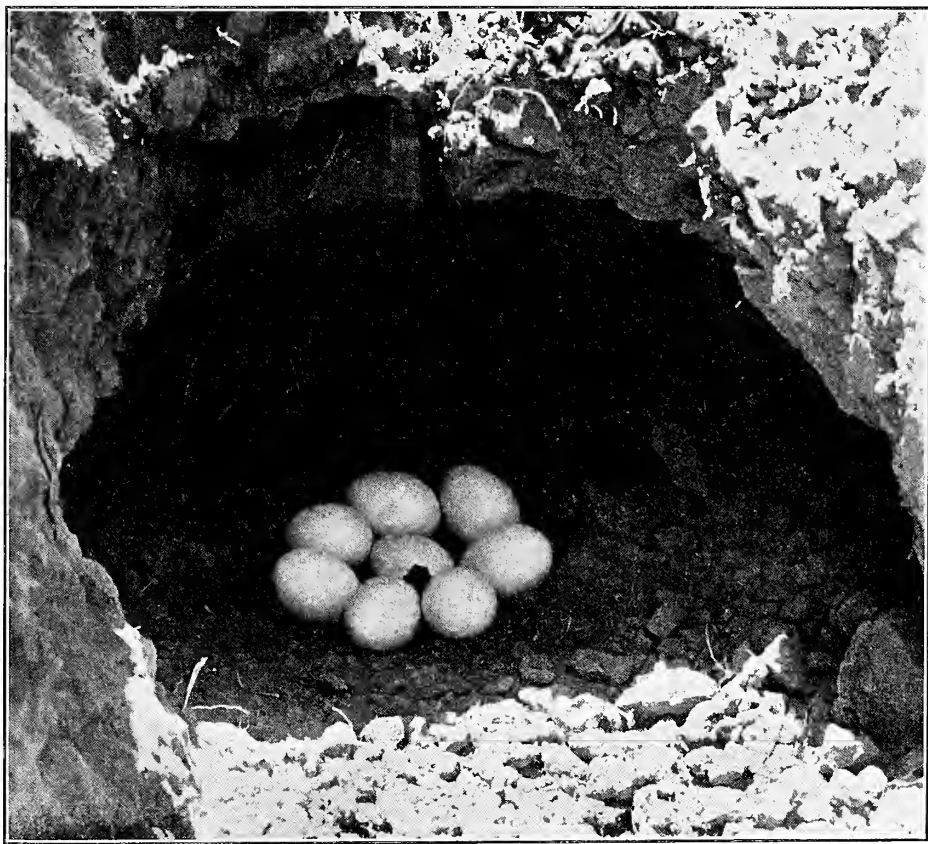


Fig. 34. NEST OF BURROWING OWL, PLACED IN A DESERTED PRAIRIE DOG HOLE.
THE ENTRANCE IS DUG OPEN SO AS TO EXPOSE THE EGGS

10. *Fulica americana*. Coot. A number of Coots were seen on Lake John July 6.

11. *Steganopus tricolor*. Wilson Phalarope. May 19 some twenty-five or thirty were seen on a small pond or reservoir at a ranch some twelve miles southwest of Elbert. Two were seen on a pool in an irrigated meadow on the way to Red Canyon, June 30; one was seen on a meadow southeast of Mt. Zirkel (the meadows are irrigated so freely that there are many pools in them); July 20 Durand saw one near Walden.

12. *Recurvirostra americana*. Avocet. July 19, while at a small lake

two or three miles northwesterly from Walden I saw a number of Avocets. I counted five, and am of the opinion that there were at least three pairs there, and also that they had young, though I could not find the latter.

13. **Gallinago delicata.** Wilson Snipe. Durand saw one in a meadow near Hell Creek, July 4.

14. **Totanus flavipes.** Yellow-legs. A single bird of this species was seen in a small stream about ten miles south of Yampa, August 3. I also thought I saw one in a slough near Walden, July 19.

15. **Actitis macularius.** Spotted Sandpiper. The first Spotted Sandpipers were seen at and about Chambers Lake. June 20 Durand found there a nest with three eggs, and no more had been laid the next day, so presumably the clutch was complete. One was seen June 22 on Cameron Creek well up toward the pass. The species was seen at Walden, at the lower bridge across the North Platte, and one or two were seen about Lake John. It was at a small lake just on the Routt County side of Buffalo Pass, at over 10,000 feet altitude. It was about the Bear River at Steamboat Springs, and August first, while fishing below the town, it was really abundant. I do not think I have ever before seen so many in a given time or space as I did that afternoon; often I saw four or five together. August 2 it was seen occasionally between Steamboat Springs and Phippsburg, and the next day one was seen several miles south of Yampa. One was seen August 7 on Clear Creek below Idaho Springs.

16. **Numenius americanus.** Long-billed Curlew. A single Curlew was seen in a field about twelve miles south of Fort Morgan.

17. **Oxyechus vociferus.** Killdeer. Beginning with my camp at Bi'ou Creek May 22, Killdeer were continually seen between there and Pawnee Buttes, being at the last named locality. Then none were seen until near Fort Collins, and it was also seen at that place and a few miles beyond there. Walden was reached before more were seen; it was common there and elsewhere in those portions of the North Park we visited. It was seen at Steamboat Springs; also at Troublesome Creek, Grand County.

18. **Podasocys montanus.** Mountain Plover. Seen at Cedar Point May 25. May 29 it was occasionally seen between Godfrey and Big Muddy Creek; on the high prairie between Deer Trail and Big Muddy we saw one with two small young, hardly a day old. May 31 it was seen occasionally. June 4, between Raymer and Pawnee Buttes, quite a number were seen. A few miles from Raymer we came across a female with two very small young, one of which I photographed several times. It tried hiding. My notes say that while hard to find it was easily seen when once found, for its colors did not blend particularly well with the ground it was on, not as much so as the photograph would lead one to infer. I think photographs often deceive in this respect. The mother bird tried various wounded bird acts while I was working with her baby. One of these was to lay flat on the ground with wings outspread and flutter them, and then flutter along the ground. Near Keota I saw one lying dead under a wire fence, as if it had been killed by striking the wire. June 11 a number were seen several miles east of Ault, most of which were females with young, some with two, some with three. We caught one a week or ten days old and photographed it. The flight feathers were just beginning to come out, and it could run like a streak, spreading out its wings as it did so. The mother did not show

anything like the anxiety the other had just a week previously. The young we saw that day all seemed to be about the same age. Sometimes we saw a single adult squatting in the shade of a fence post, and one young bird was seen in a similar position. A few were noted between Ault and Fort Collins the next day. One was seen July 5 about three miles southeast of Lake John, which acted as if it might have young, but a thorough search failed to scare up any.

19. **Dendragapus obscurus.** Dusky Grouse. Not as many Grouse were seen as I should have expected. One was seen near Hell Creek. Two females with one or more young each were seen near our Mt. Zirkel camp. One of these young appeared to be about two weeks old, that belonging to the other bird was



Fig. 35. YOUNG OF THE ALPINE THREE-TOED
WOODPECKER, JUST OUT OF THE NEST

considerably larger. This was July 12-15. July 28 seven Grouse were seen on the Routt County side of Buffalo Pass about two miles from the summit.

20. **Lagopus leucurus.** White-tailed Ptarmigan. A single Ptarmigan was seen July 10 on Mt. Zirkel, the only one we saw the whole trip. I was greatly disappointed, for I had counted on finding them plentiful there, and on securing a good series of photographs. Durand reported finding much sign of them on Sawtooth, near the Cameron Pass camp.

21. **Centrocercus urophasianus.** Sage Grouse. This species was seen only in the North Park. Near our camp at Hell Creek we saw a flock of fifteen adults, which appeared to be all males. July 5 we saw about two miles from

there a young bird about a third grown, and one about the same size was seen next day at Lake John. July 21 Durand saw a hen with four chicks near Walden, and on the 22nd while on the road en route for Buffalo Pass we saw two hens each with two fair sized chicks, about fifteen miles southwest of Walden. Many of these birds must winter about Walden, for there were piles of their old droppings everywhere in the sage brush near that place.

22. *Zenaidura macroura carolinensis*. Mourning Dove. This bird was common everywhere from the time I left Colorado Springs until near Log Cabin P. O., after which we saw no more until about twelve miles south of Walden. A few were seen at about every place we visited in the North Park. It was seen at Steamboat Springs, and along the road in Routt and Grand Counties, and between Idaho Springs and Denver. One was seen on its nest in a cottonwood tree on Wild Cat Creek, June 3.

23. *Cathartes aura septentrionalis*. Turkey Vulture. This species was seen on two occasions, May 23, about two miles east of Fondis, and June 14, near Owl Canyon, northwest of Fort Collins.

24. *Circus hudsonius*. Marsh Hawk. Marsh Hawks were not seen as frequently as I would have expected, but a few being noted, as follows: near Ramah, Mattison, about eighteen miles south of Fort Morgan, and three miles north of that place, at Steamboat Springs, and ten miles south of there.

25. *Buteo borealis calurus*. Western Red-tail. This species was seen quite frequently, though I made but one note of it on the plains, and that was really from the Divide, near Elbert, where a pair were seen. The next occasion was July 17, two miles above Home P. O., when we were getting well into the mountains. It was noted between that place and Chambers Lake, and at the latter place; fifteen miles south of Walden; near that place; near Hell Creek; at our Mt. Zirkel camp; at the Buffalo Pass sawmill; at Buffalo Pass; Steamboat Springs and a few miles south. One perched on a fence post on the divide between Yampa and Egeria Park dropped a half-eaten Wyoming Ground Squirrel (*Citellus elegans*) as it flew off. One was seen on the Gore Pass road near Rock Creek.

26. *Buteo swainsoni*. Swainson Hawk. This is more a bird of the open ground than the preceding, and seen more frequently on the plains. It was noted at Elbert and near there; two, presumably a pair, were seen at Cedar Point; it was seen May 29 between Godfrey and Deer Trail; May 30 we saw two recently killed birds at a ranch by the roadside; Durand saw one hanging about the East Pawnee Butte; one seen near Briggsdale. Two or more were seen at Walden at various times; at this place I found where one had been eating a *Citellus elegans*. These large hawks must destroy many of these pests during the summer as in the North Park they seemed to hang about where the ground squirrels were most abundant. It was seen at Hell Creek and at Steamboat Springs.

27. *Archibuteo ferrugineus*. Ferruginous Rough-leg. One seen between Briggsdale and Ault, June 11. Several large hawks were seen while on the plains, flying too high for identification, some of which may likely enough have been this species. July 22, in the North Park, between two forks of Grizzly Creek, a Rough-leg in the ordinary light phase was seen on the ground, and at the same time a very dark colored hawk was flying about overhead, which may have been a melanistic example of the same species, or possibly *B. swainsoni*. It was too far away for any positive identification.

28. **Falco mexicanus.** Prairie Falcon. There were two pairs of Prairie Falcons at Pawnee Buttes, both nesting. One bird was seen at the nest on the side of the West Butte, and the other pair were nesting in the line of bluffs to the west of the Buttes. From a point some little distance off we could see into the cavity under the overhanging rocks, and with field glasses were sure we saw two eggs. The place itself was well marked by the white streaks of droppings down the side of the rock, and the birds manifested much anxiety when we were on the rocks above the spot. June 17 we thought we saw one near Log Cabin P. O., Larimer County.

29. **Falco sparverius phalæna.** Desert Sparrow Hawk. This was about the most common hawk met with. It was seen frequently between Colorado Springs and Ramah, and also between Godfrey and Deer Trail; near Briggsdale; northwest of Fort Collins; Home P. O.; Hell Creek; Lake John; near Mt. Zirkel; at Grizzly Creek, North Park; Steamboat Springs; and frequently along the road between that place and Golden, being decidedly common at times.

30. **Speotyto cunicularia hypogæa.** Burrowing Owl. This species was



Fig. 36. WESTERN NIGHTHAWK ON FENCE POST

seen rather frequently on the plains from near River Bend to a few miles northwest of Fort Collins. May 30 we dug out a nest, or rather the other two did, while I bossed. It was, as usual, in an abandoned prairie dog hole, and eight fresh eggs were found, being five feet in from the mouth of the burrow, and three feet below the surface of the ground. The female was captured on the nest.

31. **Ceryle alcyon.** Belted Kingfisher. The first seen was on a small stream between Livermore and Log Cabin; then near Home P. O.; at Chambers Lake; Walden; at the upper bridge on the North Platte; at Steamboat Springs and eighteen miles south; Grand River, twelve miles above Kremmling.

32. **Dryobates villosus monticola.** Rocky Mountain Hairy Woodpecker. One seen May 23 at Bijou Creek, one near Chambers Lake, one at our Cameron Pass camp, and at Buffalo Pass sawmill.

33. **Picoides americanus dorsalis.** Alpine Three-toed Woodpecker. Our best find in the way of birds was probably the family of this species we found close to our Buffalo Pass camp. They had a nest in a dead Engelmann spruce,

which was twenty-five inches in diameter at the base, and twenty at the nest hole, the latter being seven feet above the ground. The nest was eight inches deep, the entrance one and three-quarters inches in diameter; the thickness of the wood on the front side of the hole was two and three-quarters inches, and the cavity was five inches from front to back, and three wide. There were a few chips in the bottom, as well as a few of the birds' droppings. There were two young, about ready to fly, though I had no difficulty in posing them on the tree for pictures; they showed little or no fear. Before we opened the nest we used to see them come to the hole whenever we came close to the tree, and often saw the parents feeding them. The whole family was collected and is now in the Colorado College Collection. This woodpecker is not at all common in Colorado, and is confined to the forests at the higher elevations, but at the same time is probably widely distributed over the mountainous parts of the State. This is the second time I have met with it myself, the previous occasion being on the divide between Sapinero and Currecanti Creeks, Gunnison County, at 9350 feet altitude.

34. **Sphyrapicus varius nuchalis**. Red-naped Sapsucker. One was taken near our camp at Buffalo Pass sawmill, July 24. I thought I saw a female Williamson Sapsucker at the same place, but failed to secure it, so am not positive as to the identification.

35. **Melanerpes erythrocephalus**. Red-headed Woodpecker. Seen but a few times; at Cedar Point, at Fort Morgan, where a pair had a nest in a cottonwood stub near the fair grounds, at Fort Collins, near Golden, and at our very last camp at Arvada, just outside of Denver.

36. **Asyndesmus lewisi**. Lewis Woodpecker. But few were noted, eight or ten being seen May 22 between Elbert and Bijou Creek, and my notes say that though they presumably live in the pines, almost all of them were seen in the open country. One was seen near Log Cabin.

37. **Colaptes cafer collaris**. Red-shafted Flicker. Seen with some frequency, yet hardly as often as it should have been. It was noted at Bijou Creek May 22, where one had a nest, which, however, I did not investigate, near Briggsdale, at Fort Collins, and between there and Home P. O., at Chambers Lake, at the Cameron Pass camp, at Hell Creek, Buffalo Pass sawmill, Steamboat Springs, near Phippsburg, on the Berthoud Pass road and near Arvada.

38. **Phalacroptilus nuttalli**. Poor-will. Two were seen at Cedar Point May 27.

39. **Chordeiles virginianus henryi**. Western Nighthawk. After seeing the first one near Mattison, May 24, Nighthawks were seen almost everywhere we went except at the highest elevations. The last was seen at Steamboat Springs, August 1, for we did not happen to note any after that. While in the plains region we often saw Nighthawks perched on fence posts, and I always tried to photograph such birds, but they would fly before I got quite as close as I wished. I persevered, however, and finally had my reward the afternoon of June 11, when one proved a most gratifying subject, allowing me to approach as close as I desired; as near in fact as I could go and focus my Graflex with a fourteen inch lens, and I could get nearly twenty inches extension the way I was using it. The bird even allowed me to crawl through a wire fence a few feet from the post it was on, so that I might have the light from the right direction. One could hardly ask more. We found several nests, or rather eggs; at

Walden, June 28, two eggs were found, and near our Hell Creek camp I flushed a bird from a single egg. She was very anxious about it, and I was able to secure a number of excellent pictures of her; this was July 3 and 4. Durand also found two eggs in another direction from the same camp. July 8 he found a single egg in the road or trail up which we had to drive to get to our Mt. Zirkel camp. July 17 we flushed the bird from the still unhatched egg.

40. **Aeronautes melanoleucus**. White-throated Swift. There was a small colony about the West Pawnee Butte. Durand saw eight or ten.

41. **Selasphorus platycercus**. Broad-tailed Hummingbird. First seen near Home P. O. At Chambers Lake it seemed rather common. It was frequently noted near our Mt. Zirkel camp, and was seen at Buffalo Pass and Steamboat Springs. Durand often said he heard Hummingbirds at various of our camps and elsewhere, without seeing them, but while I have no doubt that he was correct, I do not quite like to list them on such evidence alone. As for myself, my hearing is not good enough to be of any use in such cases.



Fig. 37. WESTERN NIGHTHAWK ON THE GROUND

42. **Tyrannus tyrannus**. Kingbird. Seen rather frequently the first few days of the trip until near Simla, then at Cedar Point, and near Agate; next May 31, south of Fort Morgan. It was common at the latter place. It was not noted again until we neared Ault, and thence was quite common to Fort Collins, and beyond nearly to Log Cabin. After that we saw no more until the last two days of our journey, when it was fairly abundant from eight miles west of Golden to Arvada.

43. **Tyrannus verticalis**. Arkansas Kingbird. This species was observed at intervals from Elbert to Pawnee Buttes, where there was at least one pair hanging about our camp. I supposed they must have a nest in the creek bank somewhere, but could not locate it. It was very common at our camp near Briggsdale, and between Ault and Fort Collins. I have no further record of the bird until we reached Steamboat Springs, where it was common, and frequently noted along the road from there to beyond Coulter.

44. **Tyrannus vociferans.** Cassin Kingbird. This bird was observed exclusively on the Divide and on the plains, from East Bijou Creek to River Bend, and thence west to a little beyond Agate. The only other seen was several miles east of Ault.

45. **Sayornis sayus.** Say Phoebe. Seen at various places from Elbert to Fort Morgan. May 31, several miles south of the latter place, a nest containing five eggs was found in a vacant house by the roadside. Two were fresh, the others in an advanced stage of incubation. Another nest found the same day was under a bridge, and we could look into it through a crack between the planks; there were three newly hatched young and two eggs. At Pawnee Buttes there was a nest in a small cavity in the creek bank near our camp, and I found another containing four eggs which appeared to be perfectly fresh in the bluffs west of the Buttes, built under the overhanging rocks. The species was noted near Fort Collins, and not again until about ten miles above Kremmling.

46. **Myiochanes richardsoni.** Western Wood Pewee. At Fort Collins a pair had a half-finished nest in a willow overhanging our tent. At Steamboat Springs there was a nest in a cottonwood close to the camp; this contained well grown young, and we saw the parents feed them. Durand climbed up with the camera, and the three youngsters scrambled out. Later we caught one and photographed it. It could not quite fly. This was July 28.

47. **Empidonax trailli.** Traill Flycatcher. Taken near Log Cabin. It seemed to be common at Chambers Lake, and also at our Cameron Pass camp. It was also noted at the Buffalo Pass sawmill.

48. **Otocoris alpestris leucolæma.** Desert Horned Lark. Horned Larks were common everywhere from Colorado Springs to Fort Collins, and were often about the only birds to be seen on the high prairies between Deer Trail and Fort Morgan and the latter place and Pawnee Buttes. A good many well grown young were seen May 23 and 24; one just able to hop around seen May 31, and a very small one June 3; June 11 a few well grown young were seen. That day we often saw birds sitting in the shadow of a fence post out of the sun. In North Park the species was first met with eight miles south of Walden, and was common at that place, where young able to fly were seen June 28. It was abundant on the sage brush plains of the Park. Near Lake John, July 5, we found a young bird, able to run, but not to fly. The species was observed on an Alpine plateau on Mt. Zirkel at 11,500 feet. It was seen near Toponas and Troublesome Creek.

49. **Pica pica hudsonia.** Magpie. Magpies were seen from Colorado Springs to near Ramah; none were noted after that until going west from River Bend, when some were seen near Agate. Durand saw one at Fort Morgan. The species was observed near Fort Collins, and beyond as far as Log Cabin. In the North Park it was seen south of Walden and was common at that place; it was noted at two or three camps on the west side of the Park. We saw it at Steamboat Springs, and noticed it frequently along the road between there and Denver.

50. **Cyanocitta stelleri diademata.** Long-crested Jay. Seen but a few times: once in the pines on the Divide, then near Home P. O., near the Buffalo Pass sawmill, Steamboat Springs, and between Idaho Springs and Golden.

51. **Perisoreus canadensis capitalis.** Rocky Mountain Jay. As was to be expected, seen only in the mountains; first on the Park side of Cameron Pass; then near Hell Creek. At the Mt. Zirkel camp several came about for scraps, but were rather shy. It was about the Buffalo Pass camp.

52. *Corvus corax sinuatus*. Raven.

53. *Corvus brachyrhynchos*. Crow. Durand and I could never agree as to the identity of certain birds we saw at Walden, near the North Platte River, and at Lake John. He was quite positive they were Crows, but I am sure that some, at least, were Ravens. But we did run across a flock of birds July 5, while driving from Hell Creek to Lake John, which may have been Crows; they were rather small for Ravens, and there were more together than one often sees of that bird. We were unable to secure any specimens of these or any of the others we saw. Mr. E. N. Butler of Walden, who has resided in the North Park many years, told me he could not recall ever having seen Crows in that region.

54. *Nucifraga columbiana*. Clarke Nutcracker. Seen twice on Mt. Zirkel.

55. *Molothrus ater*. Cowbird. Noted at Elbert, Bijou Creek, between Ault and Fort Collins, and west of the Forks P. O. Seen south of Walden, and was very common at that place. Was at the North Platte, and between there



Fig. 38. WESTERN NIGHTHAWK ON FENCE RAIL. Figs. 36, 37, AND 38 SHOW CHARACTERISTIC NIGHTHAWK POSES

and Lake John. Later it was observed at Troublesome Creek and Fraser.

56. *Xanthocephalus xanthocephalus*. Yellow-headed Blackbird. First noted a few miles east of Fort Collins, and then a little way west of there. There were some at Walden. The patch of rushes in Lake John was alive with the birds, and we found many nests with from one to four eggs; one set of the latter number was collected and proved to be well incubated. In one nest we found a just-hatched young bird, an egg of the ordinary size, and runt egg half the size of the other. At our second stay at Walden one was noted feeding about our horses, at camp, in company with Brewer Blackbirds. After leaving the Park no more were seen except once about ten miles south of Steamboat Springs.

57. *Agelaius phoeniceus fortis*. Thick-billed Redwing. Observed at various places on the Divide and thence to River Bend, wherever there was a stream or waterhole. May 29, at a slough a mile or so west of Agate, Rockwell found a nest with three eggs, and one with four. It was at Big Muddy and

Badger Creeks, and at Fort Morgan. Observed near Briggsdale, and common between Ault and Fort Collins. Was at the latter place and thence as far as Elkhorn. There were a few about Walden, and we noted it about the streams and flooded meadows in those parts of the North Park which we visited. It was seen south of Steamboat Springs and at Troublesome Creek.

58. *Sturnella neglecta*. Western Meadowlark. Frequently observed from Colorado Springs to Home P. O. At Elbert, May 20, I heard it singing when it was snowing and blowing hard. June 11 we found a nest containing four eggs about five miles southwest of Briggsdale. The bird must have sat very close, for we were fooling around close to the nest some time before she flushed. In the first place I photographed a two-thirds grown cottontail, and when it started to run Durand shot it, as we needed it for supper. It had hardly been picked up when we discovered a very small one, about as big as one's fist, squatting in the very same place where the other had been. Of course it had to be photographed, and when it had left that place I followed it about trying for more pictures, as it seemed absolutely devoid of fear. It was not until this was all over that the Meadowlark flushed, a few feet from where the rabbit had been. Meadowlarks were common at Walden, and almost everywhere we went in the Park, except of course on the mountains. It was seen at Steamboat Springs, and often between there and Arvada.

59. *Icterus bullocki*. Bullock Oriole. Seen at Bijou Creek, Cedar Point, and Fort Morgan, where it was nesting. It was noted at Wild Cat Creek, north of Fort Morgan, Fort Collins, and Steamboat Springs.

60. *Euphagus cyanocephalus*. Brewer Blackbird. Often seen between Colorado Springs and Elkhorn. After that not again until about fifteen miles south of Walden, and was common there and everywhere else in the Park. At Lake John, July 5, females were seen carrying food in their bills. At Walden, July 19, these birds were going about in flocks, showing that the breeding season was over and the young out of the nests. It was the most common blackbird at that place, with the Cowbird second. It was noted at Steamboat Springs, and thence as far as Vasquez.

61. *Carpodacus cassinii*. Cassin Purple Finch. Seen but once, three or four miles south of Yampa.

62. *Carpodacus mexicanus frontalis*. House Finch. Seen at Bijou Creek and at Fort Collins.

63. *Leucosticte australis*. Brown-capped Rosy Finch. Seen on the high mountains about Cameron Pass, and was common about Mt. Zirkel, near and above timberline.

64. *Astragalinus tristis*. Goldfinch. Seen at Bijou Creek and Fort Morgan.

65. *Spinus pinus*. Pine Siskin. Seen at Bijou Creek, Cedar Point, near Elkhorn, at Mt. Zirkel camp, and north of Kremmling.

66. *Passer domesticus*. House Sparrow. Noted at Elbert, Fondis, Ramah, Simla, River Bend, at two or three ranches between Deer Trail and Fort Morgan, and at the latter place, Keota, Briggsdale, and at ranches between there and Ault, and at that town, at about every ranch between there and Fort Collins, and at Fort Collins of course, at Walden, Steamboat Springs and Yampa.

67. *Poœcetes gramineus confinis*. Western Vesper Sparrow. Common from Colorado Springs to Godfrey; then noted between Forks and Log Cabin;

below the Cameron Pass Camp; common in the sage brush in the North Park. June 30, between Walden and Hell Creek, a good many young were seen just able to run about; and July 5, while driving from the last-named place to Lake John, more were seen, including one which was captured and photographed. At Lake John I found near our camp a nest with three fair-sized young; going there the next day with the camera I found the nest empty, but a garter snake was found with a suspicious swelling in its middle, and executed. I meant to have killed it so as to have preserved it for a specimen, but forgot myself and blew its head off. At the same locality, July 7, a nest with four small young was found. It was at Steamboat Springs, and often seen between there and Arvada.

68. *Passerculus sandwichensis alaudinus*. Western Savannah Sparrow. Seen at Walden; at the upper and lower bridges over the North Platte; about the meadows at Hell Creek. At various times small sparrows were seen about the flooded meadows in the Park, which were no doubt this species, but the super-

abundance of mosquitos in those places did not encourage one to investigate very closely.

69. *Chondestes grammacus strigatus*. Western Lark Sparrow. Seen near Fondis, at River Bend and Cedar Point. At the latter place, May 27, while the birds seemed to be mated, they were not yet nesting. It was noted a few times between River Bend and Deer Trail, and then at Fort Morgan, Wild Cat Creek, Pawnee Buttes, and from there to Fort Collins, and thence to near Log Cabin. Seen several times between Steamboat Springs and Toponas, and near Golden.

70. *Zonotrichia leucophrys*. White Crowned Sparrow. First seen at Chambers



Fig. 39. NEST OF THE WHITE-CROWNED SPARROW;
MOUNT ZIRKEL, 10500 FEET, JULY 11, 1911

Lake, and was rather common at the Cameron Pass Camp. It was common about Mt. Zirkel, where it ranged at least to timberline. July 11 we found a nest containing four eggs in a scrubby spruce at an altitude of 10,575 feet, just below timberline. An odd thing about this nest was that the day before we had set a mouse trap on the ground almost directly under the nest, and tied the marker to the bush over it. The bird must have flushed then without being noticed, or else was not sitting, and the nest itself was well hidden. She was on the nest and flew off the day we discovered it. The nest was about two feet above the ground, and built mostly of fine grass. The species was noted at the Buffalo Pass saw mill, where it was quite tame and familiar, and was also at Buffalo Pass. Seen several miles south of Yampa, at Rock Creek on the Gore Pass road, east of Coulter, and on Vasquez Creek.

71. *Spizella passerina arizonæ*. Western Chipping Sparrow. May 19

to 22 this species was common in the pines on the Divide, and about Elbert. Seen about fifteen miles south of Walden, and about the Buffalo Pass saw mill. It was also noted west of Golden. These seem very few notes for this common species, and I hardly know how to account for it.

72. *Spizella breweri*. Brewer Sparrow. Two or three were seen between Fondis and Ramah, and I thought I saw one near Pawnee Buttes. It was a common bird in the sage brush in the North Park, being observed everywhere we went. June 26 a nest with four eggs was found in a greasewood bush near Walden; the eggs seemed to be somewhat incubated, and the nest was empty when visited July 18. Another with four eggs was found at Lake John, July 6; these were but slightly incubated, as I found by dropping one while examining it. Durand found a nest with three eggs at Walden, July 21. The species was observed at Steamboat Springs and south of there as far as Toponas, where we turned off into the mountains.

73. *Junco phæonotus caniceps*. Gray-headed Junco. Seen at my first camp on the Divide, about four miles west of Eastonville, May 19; between Log Cabin and Elkhorn; Chambers Lake; west of Cameron Pass; fifteen miles south of Walden; Hell Creek; about Mt. Zirkel; near Buffalo Pass saw mill; Buffalo Pass; Gore Pass; east of Coulter; and in pines about ten miles west of Golden.

74. *Melospiza melodia montana*. Mountain Song Sparrow. Noted at Elkhorn. A little below the Mt. Zirkel camp a nest with four eggs was discovered July 9. It was on the ground in a tuft of bunch grass; from the actions of the bird I am inclined to think the eggs were well incubated. One was seen at Buffalo Pass, one at Steamboat Springs, and one a few miles south of Yampa.

75. *Pipilo maculatus montanus*. Mountain Towhee. One seen near Log Cabin, and several in the foothills west of Golden.

76. *Oreospiza chlorura*. Green-tailed Towhee. Seen May 19 on the Divide; at Bijou Creek; near Log Cabin and between there and Elkhorn; near Hell Creek; near Mt. Zirkel; at Grizzly Creek; Steamboat Springs; south of there to Toponas; above Kremmling; near and below Empire.

77. *Zamelodia melanocephala*. Black-headed Grosbeak. Observed at Fort Morgan and Ault.

78. *Passerina amoena*. Lazuli Bunting. Seen west of the Forks, June 15.

79. *Calamospiza melanocorys*. Lark Bunting. This species was first noted May 19 on the Divide, when a few were seen. None were seen after that until about two miles east of Fondis, when it became common. It continued so practically everywhere until after passing the "Forks" in Larimer County, except that I saw none on Cedar Point, though it was on the prairies below. On the high prairie country between Deer Trail and Pawnee Buttes this species and the Horned Larks were often the only birds seen, and the latter were the more abundant. It was seen near Walden. Near Sidney P. O., Routt County, August 2, I shot a male Lark Bunting which is a peculiar partial albino. At first sight I took it for a Bobolink, for which I had been watching all the morning, as I had found them along that road four years before. The wing patches are normal in extent, but much tinged with rusty, and the feathers of the back and upper wing coverts are edged with the same. The tail is decidedly rusty. Below the bird is about equally black and white, these colors, however, being unevenly distributed, and presenting rather a curious appearance. Also noted near Yampa.

80. *Piranga ludoviciana*. Western Tanager. For some reason but a single specimen of this species was seen the whole trip, at Elbert.

81. *Petrochelidon lunifrons*. Cliff Swallow. Observed near Elbert, at River Bend, Cedar Point, Lowland, between Raymer and Pawnee Buttes, and at the latter place, where, as noted in the introduction, there was a colony having nests in the bluffs along the creek. Seen near Ault, Fort Collins, and west of there to a little beyond Home P. O. Was common at Walden and other places

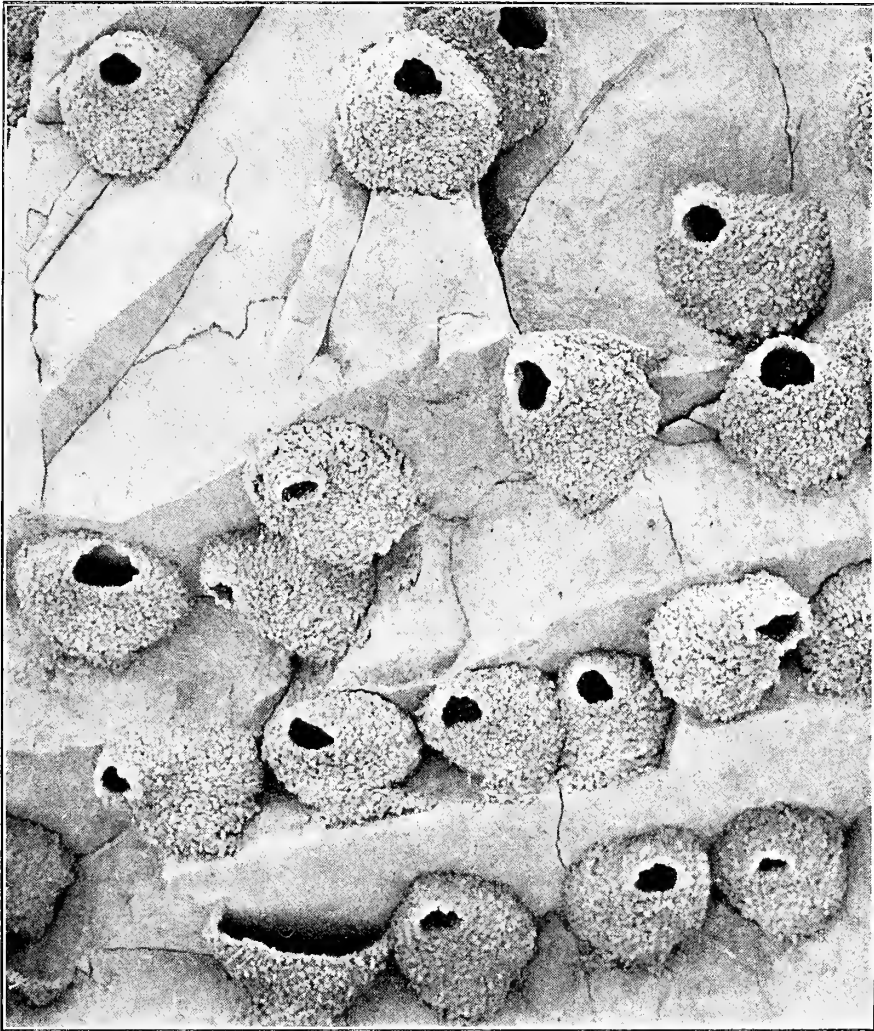


Fig. 40. PORTION OF THE CLIFF SWALLOW COLONY AT PAWNEE BUTTES

in the North Park. July 5, when we passed the High schoolhouse, near Lake John, we saw a colony having nests under the caves of the schoolhouse. I counted fifty-seven on the west side of the building, and there were many more on the other. When we passed there again July 17, we found the nests had all been destroyed, presumably by some fool who held the ridiculous belief that the birds harbor bedbugs. There were millions of mosquitos on which the birds were

feeding, and one would have thought it wiser to take chances on the bugs, and let the swallows eat the other insects. Seen at Steamboat Springs and south of there. August 3, about three miles south of Phippsburg, I saw a flock which must have consisted of several hundred birds. At one time most of them perched on some service berry bushes, which they almost covered. A good many were seen at Kremmling. A few nests were seen on rocks in a railroad cut just outside of Sulphur Springs. Noted at Fraser, and west of Golden.

82. *Hirundo erythrogastra*. Barn Swallow. Seen north of Colorado Springs near Elbert; Bijou Creek; Simla; between Big Muddy Creek and Fort Morgan; near Ault; between there and Fort Collins; at that town and occasionally from there to near Elkhorn; ten miles south of Walden, and at that place; at the North Platte River; Hell Creek; near Phippsburg and Coulter.

83. *Tachycineta thalassina lepida*. Violet-green Swallow. First observed at Chambers Lake, where it was common, as also on the North Park side of Cameron Pass, and along the road to Walden. It was at Hell Creek and seen flying at high altitudes about Mt. Zirkel. Noted at Buffalo Pass saw mill. Near Steamboat Springs, July 28, I saw one enter a hole in a dead aspen by the roadside; presumably it had young there. Observed at Steamboat Springs, and at various places between there and Coulter.

84. *Lanius ludovicianus excubitorides*. White-rumped Shrike. Noted eight miles west of Elbert. At Bijou Creek, May 22, I found a nest containing five eggs in a willow. Seen frequently between Bijou Creek and Simla, and was at Cedar Point. A few miles west of Agate we found a nest with five fresh eggs; this was also in a willow. Seen near Fort Morgan, and at that place Durand discovered a nest with seven eggs; this was in a cottonwood on the fair grounds. Noted about eighteen miles south of Steamboat Springs; on Toponas Creek, and near Coulter.

85. *Dendroica æstiva*. Yellow Warbler. Seen west of the "Forks"; above Home P. O.; at our Cameron Pass camp; Lake John; at Steamboat Springs it was common about our camp, which was among the cottonwoods by the river; seen at Troublesome Creek.

86. *Oporornis tolmiei*. MacGillivray Warbler. One seen at Cedar Point, May 27.

87. *Wilsonia pusilla pileolata*. Pileolated Warbler. One taken at Chambers Lake.

88. *Anthus rubescens*. Pipit. Seen on the mountains about Cameron Pass, June 23; I thought from their actions they were but just mated. It was common about Mt. Zirkel, where, on July 11, I saw one with an insect in its bill, and acting as if it wished to feed its young, but it would not go to the nest while I was about. One seen at Buffalo Pass.

89. *Cinclus mexicanus unicolor*. Water Ouzel. Seen near the Cameron Pass camp; in Red Canyon; at Steamboat Springs, in Fish Creek; and in Vasquez Creek.

90. *Oreoscoptes montanus*. Sage Thrasher. This bird was abundant everywhere in the sage brush in the North Park. The young seemed to be about. July 18. It was at Steamboat Springs, and often seen between there and Vasquez.

91. *Mimus polyglottos leucopterus*. Western Mockingbird. Two were seen at Cedar Point; Rockwell saw one at a slough a mile or so west of Agate; one was noted at a ranch north of Big Muddy Creek; it seemed to be common at

Fort Morgan, where there was a nest on the fair grounds, which had three eggs June 2; it was noted at Wild Cat Creek and near Briggsdale.

92. **Dumetella carolinensis.** Catbird. Observed at Fort Collins; between the Forks and Log Cabin; and about twelve miles south of Steamboat Springs.

93. **Toxostoma rufum.** Brown Thrasher. One seen at Wild Cat Creek.

94. **Salpinctes obsoletus.** Rock Wren. Seen at Elbert; Cedar Point, where it was common, as also at Pawnee Buttes; near Log Cabin; Lake John; near Empire and below there, quite frequently.

95. **Troglodytes aedon parkmani.** Western House Wren. Noted at Bijou Creek; between Log Cabin and Elkhorn; Hell Creek, where one was seen carrying an insect in its bill, but would not go to its nest while we were about; Buffalo Pass saw mill; Steamboat Springs, where one came about camp and investigated the wagon, crawling about everywhere underneath the box. While

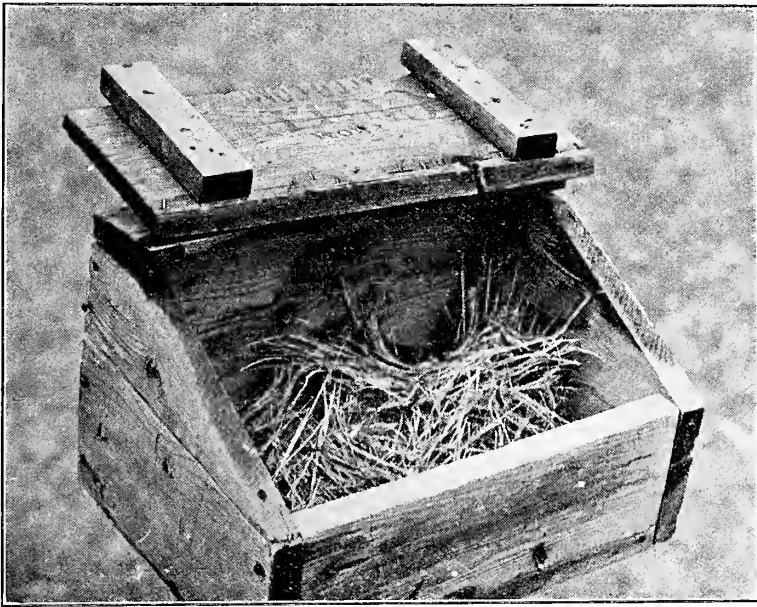


Fig. 41. NEST OF MOUNTAIN BLUEBIRD, PLACED IN AN OLD MAIL BOX

stopping for lunch August 2, about twelve miles south of Steamboat Springs, we saw a Wren carrying insects into a hole in an oak fence post. The hole was so small we could not make out what was inside, but no doubt young birds.

96. **Sitta pygmæa.** Pygmy Nuthatch. Seen in the pines about four miles west of Eastonville.

97. **Penthestes gambeli.** Mountain Chickadee. Seen at Hell Creek, Buffalo Pass saw mill, and Steamboat Springs.

98. **Regulus calendula.** Ruby-crowned Kinglet. Durand collected a pair at Chambers Lake, and a young of the year at Buffalo Pass saw mill; seen at Mt. Zirkel camp; near Buffalo Pass I saw a little troop of them which seemed to be a family party, parents and young.

99. **Myadestes townsendi.** Townsend Solitaire. Observed near Hell Creek and about Mt. Zirkel.

100. *Hylocichla ustulata swainsoni*. Olive-backed Thrush. Seen at Buffalo Pass saw mill.

101. *Hylocichla guttata guttata*. Alaska Hermit Thrush. One seen at Bijou Creek, May 23.

102. *Hylocichla guttata auduboni*. Audubon Hermit Thrush. One seen at the saw mill at Hell Creek.

103. *Planesticus migratorius propinquus*. Western Robin. From Colorado Springs to Simla, Robins were often seen; then no more were observed until near Fort Collins, when it again became common, and continued more or less abundant from there on everywhere we went. At Mt. Zirkel it was seen at 9500 feet, and I found a nest with four eggs near camp, July 12. It was seen at Buffalo Pass. A few miles below Empire we found a fully fledged young one which seemed disabled, and an examination showed its throat to be injured, apparently by flying against a wire. It seemed unable to stand up, and fluttered about; I am doubtful if it survived its hurt.

104. *Sialia mexicana bairdi*. Chestnut-backed Bluebird. Several seen west of Eastonville, on the Divide.

105. *Sialia currucoides*. Mountain Bluebird. Often seen from Colorado Springs to Simla; after that none until after passing Log Cabin, and that morning, June 17, a nest containing four eggs in an advanced stage of incubation, was found in an old mailbox at the top of the Pingree Hill. The female belonging to this nest was secured, and was a partial albino, having white cheeks and nape. The species was common all through the North Park; at Walden, June 27, I saw three young just from the nest. At Mt. Zirkel they were seen above timberline, and were common at Buffalo Pass. Noted at Steamboat Springs, and frequently from there to Arvada.

AN AFTERNOON'S FIELD NOTES

By J. GRINNELL

THE following excerpt from my private field note-book for the year 1907, is transcribed exactly as originally written, save for minor corrections in punctuation and spelling. These notes were written "on the spot" from time to time during the three or four hours of observation. They show the nature of a certain type of field observations, how these may be recorded in a running narrative style, and there is perhaps some information presented of general interest to the student of living birds.

The experienced observer will probably criticize the method of record, at least, while the beginner may find something worth while adopting. One principle, however, the writer is particularly sure of; namely, that a card-system for immediate record of field-notes is absolutely impracticable. I hasten to assure the reader that I am responsible for a rather elaborate card-system adopted for the cataloging of a museum's collections, and for bibliographic purposes. But this or any other modification of the card-system I have ever seen has its limitations, and to my notion is wholly out of place when it comes to putting into black-and-white facts as gathered in the field. It is quite possible to copy and assort these latter by any kind of system; but the greatest value, because of the element

of first-hand precision, will always lie in the original record. No matter what plan of indexing the information therein contained, may be subsequently put into effect, my original narrative notes are always retained intact, and preserved with the greatest solicitude.

Glendora, Los Angeles County, California, May 5, 1907; 12:45 P. M.—I am alone on the back end of S. W. Wood's orange ranch at the edge of a waste acre or so of land near the Little Dalton which is still running quite a stream. I just saw a Black-chinned Hummer episode: I first saw a female pursued by a male into a thick low bush, where she alighted completely hidden. The male then proceeded to buzz back and forth before her within three feet of her, in the arc of a pendulum of not more than three feet chord. At the same time he uttered a deep buzz augmented at the middle of the swing. After about twenty of these swings, each occupying one second, he mounted up in the air about fifty feet and dove down in a far larger pendulum swing, arising to an equal height on the other side to repeat. At the bottom of the swing he uttered an augmented metallic quavering rattle. After repeating this maneuver twelve times he made off to a nearby *Nicotiana* where he fed from the pendant blossoms without further interest in the female, whom I lost sight of.

12:55—I am in sight of a male Valley Quail stationed about ten feet up on the topmost strong-enough branch of a *Nicotiana*. He is "hollering", the single loud yell, like a child's shout at a distance. Two other quail, one up, the other down the Dalton, are answering at intervals. I have not heard the regular quail-call of three syllables. The quail that I am watching "hollers" at following intervals: 1-3-3-6-4-6-5-12-5-5-5-6-8-10-3-9-7-4-9-8-6-13-3-5-4-5-9-7-5-6-9-5-5-6-5-6-9-5-5-7-4-8-7-7-6-11-6-8-4-4-3-6-7-5. In the above, the dashes represent the call, the numeral the number of seconds, by my watch, intervening. The other two quail have been calling at very similar intervals, and all have been keeping up the performance since 12:55 (it is now 1:7).

1:13—There is a profusion of a tall maroon-colored *Pentstemon*. Just saw a male Black-chinned Hummer rapidly visiting each flower around a spike. A male Lazuli Bunting is singing its hurried shrill song from the top of an oak. The bird is about seventy feet from me in an air line, perched composedly in a hunched-up attitude. He sings at following intervals (seconds):—10-18-15-13-11-12-10-11-11-13-19-11-12-13-13-12-11-9-12-13-13. A Long-tailed Chat is singing from the brush along the creek, his rambling incoherent series of whistles, chucks and squawks.

1:25—The quail is still at it. I heard him make several explosive sounds a while ago like a turkey gobbler. These were uttered in rapid succession in sputtering fashion. A male Costa Hummingbird just flew close to me, feeding about the *Pentstemons*. A male Pileolated Warbler is investigating a pile of weed-overgrown orange brush nearby. All the vegetation is very rank, weeds growing up as high as my head on undisturbed ground.

1:33—A male Costa Hummer was just going through his mating performances; and I am not at all sure there was any female beneath to warrant the energy spent. He mounted up, slowly rising to fully 200 feet (almost out of sight), then swung down with marvelous swiftness nearly to the ground (1½ feet I should say), rising up more slowly to an equal height to repeat. In his downward swoop he uttered a swelling shrill note of piercing quality and continuous of tone, this dying out on the upward part of the swing. He repeated this

performance about fifteen times before going off to perch and preen himself on a *Nicotiana*.

1:42—Four White-throated Swifts just flew dizzily past high overhead, twittering violently as is their wont. Two clashed and fell, fluttering for what looked like several hundred feet. Another attached itself to the nucleus and all fell till I thought they would descend clear to the ground. But they separated in time to each dart off on his separate way. A male Costa Hummer is very diligent at the *Pentstemons*. In three cases he sipped at every one of the open flowers on each spike—6, 6, and 12—then sipped at one blossom of another spike and flew off. Several pairs of Lawrence Goldfinches are about with their wheezy notes. Also a pair of Willow Goldfinches (male not perfectly yellow, though fairly bright, but in full song), and lots of Green-backed Goldfinches.

1:56—I have moved across the waste lot about one hundred yards, and am seated on a stone-pile by the creek, with a walnut (*Juglans californica*) fifty feet away, several clumps of *Nicotiana* and some poison-oak thickets nearby. A Pasadena Thrasher is watching me from a *Nicotiana* 150 feet upstream. It has been bathing and is preening and shaking itself violently. There are several pairs of Willow Goldfinches drying themselves in the walnut and bushes nearby. Goldfinches seem more than most other birds to enjoy bathing; this in spite of its being a sunless day, dense high fog with even an occasional drizzle. A Black-headed Grosbeak has been singing from the walnut almost continuously since one o'clock. They are by far the most voluble singers of all the birds within hearing. Perhaps the Green-backed Goldfinches come in next. I have seen and heard both the Bullock and Arizona Hooded Orioles in the vicinity. This location is too near the noisy brook for hearing birds, so I will move back to the other edge of the waste lot.

2:10—Just got an eight-foot view of a female Costa Hummer, at *Nicotiana* flowers. A flock, of separate pairs, mostly, of all three species of goldfinch are feeding in a rank patch of *Amsinckia*, evidently shelling out green seed pods at the bases of the flower spikes. There are at least two Long-tailed Chats singing, but I have only gotten a fleeting glimpse of one as it flushed from a brush pile. Just saw a Golden-crowned Sparrow.

2:25—I just got a good view (twenty feet) of a Lincoln Sparrow in a pile of dry orange trimmings. I saw probably the same bird a few minutes ago in the green weeds under the walnut by the stream. A Least Vireo has been in the oak or around the brush patch all the afternoon. It only sings occasionally, uttering its brief song three to five times, at intervals of five seconds or so. The "theme" is uttered with rising inflection, as if asking a question; then, with a falling inflection, as if replying. These two kinds of notes are uttered alternately. Each "theme" is a warbling jumble of vireo notes uttered hastily, with no care in pronunciation. The rising and falling inflections in alternate themes is the best character of the song. One of the Chats is singing now in plain view on a *Nicotiana* one hundred feet away. Song intervals: w 5 ch 4-w 6-3 ch 4 w 7 ch 3 w 5 ch 5 ch—it's hard to time the chat's song; the whistle (w) most always alternates with some sort of a chuck (ch). I should judge the intervals between the individual notes to average four seconds. He has been singing thus for fully five minutes. Sometimes a whistle is of four clear notes each with falling inflection and close together, very similar to a boy calling his dog; others are single clear whistles, loud and of carrying quality; then the chucks are, some, like a Parkman Wren

call note, others like the hoarse chuck of a mockingbird—*very* hard to describe! A while ago the chat flew up through the air fifty feet or so, singing, with peculiarly drooping and flopping wings. I am sure a pair of Wren-tits have a nest nearby. Also a pair of Bush-tits, the latter probably in the oak, where I have seen them fly several times. Two Western Wood Pewees are about, one frequently in full pursuit of the other with loud snapping of bills, and muttered notes. A Turkey Buzzard is circling overhead. Just watched a female Green-backed Goldfinch laying the first foundation material for a nest five and one-half feet up in a tall weed (*Malva?*).

2:55—Just located the Bush-tit's nest. It is of usual style, six feet up in outer lower drooping oak branch; contained five half-grown young whose claws were clinched together tightly through the material of the nest bottom, and could only be pulled out by pulling the feathers, etc., to which they clung. No wind could dislodge them without tearing the nest to shreds first. The youngsters twitter loudly in chorus when a parent enters the nest with food.

Later—A pair of Mourning Doves have been feeding on the croquet ground by the Wood's house. I saw a Hammond Flycatcher perched on a stake in the reservoir, and another in the orchard. Also two Black Phoebe, and a female Yellow Warbler. At least three Phainopeplas are among the olives and pepper trees along the street. Have also seen about the ranch: Western Lark Sparrow, lots of Linnets, Mockingbirds, Western Chipping Sparrows, and Anthony Towhees.

FROM FIELD AND STUDY

Some Changes and Additions to the List of Birds of Southwestern Montana.—Owing to the fact that I neglected to have several bird-skins, collected in Southwestern Montana, properly identified until recently, I have one correction and one addition to make to my list in the last number of THE CONDOR. An adult male Red-winged Blackbird collected in the Silver Bow marshes, May 21, 1911, has been identified by Dr. L. B. Bishop as the Northwestern Redwing (*Agelaius phoeniceus caurinus*). He states that it agrees exactly with skins in his collection from the coast of British Columbia. This is all the more surprising because of the fact that I had every reason to believe it to be a breeding bird. I found several nests containing both eggs and newly hatched young in the Silver Bow marshes on the day this bird was secured. Since it is the only one of this species that I have taken in that part of Montana it leaves the breeding form of Redwing there in considerable doubt until more conclusive evidence can be obtained.

An adult female Junco, taken on Clear Creek, Deer Lodge County, October 9, 1910, Dr. Bishop identifies as the Oregon Junco (*Junco hyemalis oregonus*) stating that it is an unusually high-colored specimen even for that race. I had rather suspected that this form occurred among the migrant Juncos of western Montana for some time, but this is my first opportunity to prove it. I confidently believe that more extended collecting will prove it of regular and not rare occurrence.—ARETAS A. SAUNDERS.

Migration of White-necked Ravens.—This past winter has been unusually cold and as a result there has been an utter absence of White-necked Ravens (*Corvus cryptoleucus*). Those from this section (Cochise County, Arizona) migrated in one immense flock the second Monday in last November. This flock extended over a distance of nearly three miles along the foot hills of the Dragoon Mountains near Gleason in this county. There did not seem to be any regular flight, but a sort of general slow movement to the south. The birds were present in many thousands and it was two days before the last stragglers disappeared. A few are now back again, the first being seen on the 22nd of February.

What few American Ravens I know of in this section did not share in the migration but were present in their usual haunts all winter.—F. C. WILLARD.

The Western Marsh Wren Wintering Near Helena, Montana.—On March 12, 1911, I observed a Marsh Wren (*Helminthophila palustris plesius*) in cattail marshes near Helena, Montana. I both saw this bird closely and heard it sing several times, so that I feel certain of its species, though I was unable to secure it. This was in the same locality in which I found the Virginia Rail a few weeks before, reported in *THE CONDOR*, XIII, p. 108. Since the spring migration had barely started, only the Mountain Bluebird and Desert Horned Lark having arrived at that date, it is reasonable to suppose that the Wren was not a migrant but had spent the winter there. Wilson Snipe and a Virginia Rail were again observed there on this date.—ARETAS A. SAUNDERS.

Who Will Save the Band-tailed Pigeon?—Band-tailed Pigeons (*Columba fasciata*) were abundant this winter from Paso Robles south to Nordhoff all through the coast range of mountains. One hunter from Los Olivos shipped over 2,000 birds to the San Francisco and Los Angeles hotels.

The morning train from San Luis Obispo to Los Olivos on Sundays averaged 190 passengers who came to hunt pigeons. A prominent hunter told me that these passengers averaged about thirty birds apiece per day. This would make this one day's excursion over 3,000 pigeons. Now!—this is only one train and one day's hunting. One can hardly calculate the number of birds killed by hunters in automobiles and those who started from Los Angeles, San Francisco, Santa Barbara, Ventura, Santa Maria, Paso Robles, Lompoc and other small towns.

The writer, who is in the gun and ammunition business, was thoroughly disgusted with the game hogs who simply shot pigeons for the sport (?) and could not even eat them all. It is a shame that something is not done for these beautiful birds, which are doomed to follow in the footsteps of the Passenger Pigeon. I honestly believe that the people will never again see such a flight of Band-tailed Pigeons. In Nordhoff it is the largest they have ever seen, and the birds evidently hung around until they were simply shot out. This same state of affairs is probably true in other localities.

If something is not done very quickly these birds are doomed; for any bird that flies in such flocks is bound to be exterminated. What can be done?—W. LEE CHAMBERS.

Two New Birds for Colorado.—I wish to record two more species of birds new to the State of Colorado.

First, the Lapland Longspur (*Calcarinus lapponicus lapponicus*). Two of these birds were taken December 28, 18 miles northeast of Denver; one of them identified by Mr. Oberholser.

Second, the Sierra Hermit Thrush (*Hylocichla guttata sequoiensis*). Four of these birds have been taken in Colorado and three of them identified by Mr. Oberholser. One was taken on the Arkansas River, May 16, near Holly; one taken near Golden, May 2, and the other two taken west of the range near Granby on October 7, thus proving that they sometimes pass through Colorado both fall and spring.

All of the above are in the collection of the Colorado Museum of Natural History.—L. J. HERSEY.

A Correction.—My attention has recently been called to the fact that I recorded the Savannah Sparrow (*Passerculus sandwichensis savanna*) in my list of birds of South-western Montana in the January, 1912, number of *THE CONDOR*. This is an error for which I am unable to account. The list should read *Passerculus sandwichensis alaudinus* (Western Savannah Sparrow).—ARETAS A. SAUNDERS.

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EDITORIAL NOTES AND NEWS

Avifauna number 7 is in galley proof, and with fair luck should be off the press ready for distribution to Cooper Club members by August first. The subject of this paper is "The Birds of the Pacific Slope of Southern California." It consists of concise statements of seasonal and geographical distribution, nesting time and manner of nidification.

Mr. W. Leon Dawson is in the field in San Luis Obispo County, doubtless successful in securing photographic studies of certain Raptors necessary to the completeness of his "Birds of California."

The Museum of Vertebrate Zoology of the University of California is represented in field exploration this year as follows: Mr. H. S. Swarth and Mr. H. A. Carr are at work in Owens Valley, with base stations at Lone Pine, Keeler and Independence, successively. Mr. W. P. Taylor and Mr. F. H. Holden (to be succeeded later by Mr. T. I. Storer) are tracing out the distribution of certain rodents in the Sacramento Valley. Mr. J. Grinnell, in company with Mr. J. S. Hunter, an agent of the State Fish and Game Commission, is investigating the status of game animals in the mountainous region of Santa Barbara, Ventura, and Kern counties. All this season's work is thus within the State of California.

COMMUNICATION

EDITOR OF THE CONDOR:

Mr. H. S. Swarth in his review of my

"Monograph of the Broad-winged Hawk" feels that a few points, which he cites, could have been made more clear and explicit. In justice to my work, I would state that the evidence presented under the head of "Local Distribution" gave me no choice other than the restriction of the summer range of *Buteo platypterus platypterus* "south to Florida and Central Texas." Though Zeledon briefly states that it "breeds" in Costa Rica, and I have faithfully transcribed the comparative description and position of the nest in Central America according to Salvin and Godman. I can find no specific record of its breeding, or the capture of the bird in the breeding season, south of the line given.

Sometime before I had decided to insert a name for the small, dark Cuban bird, with the heavily banded thighs and wing lining, the entire manuscript was ready for publication, too late to upset the entire plan of the work. Also, I feel that I, a humble amateur, was not sufficiently impressed with the importance of a mere form. The Bayote specimen described on pp. 147-148, is of course the type of *Buteo platypterus cubanensis*.

Yours truly,

FRANK L. BURNS.

PUBLICATIONS REVIEWED

THE HOME-LIFE | OF | THE OSPREY | Photographed and described | by | CLINTON G. ABBOTT, B. A. | Associate of the American Ornithologists' Union | with some photographs by Howard H. Cleaves, Associate of | the American Ornithologists' Union. | With thirty-two Mounted Plates | London | Witherby & Co., 326 High Holborn W. C. | MCMXI. Large 8vo, cloth, pp. 1-54, pls. 1-32. In America to be bought for \$2 at Bretano's, 229 Fifth Ave., New York City.

This treatment of a single bird species is, in the recollection and judgment of the reviewer, among the most faithful, as well as comprehensive, that has ever appeared. The text is admirably composed, from both a literary standpoint and that of ornithological veracity. An element of conciseness is apparent which accounts for a compass of fifty-four pages, where a modern "nature-writer" might have made two hundred.

No less fascinating than the text are the first-quality illustrations, selected each to show some particular feature of behavior of the birds, or construction of their nests. These photographs demonstrate a very close acquaintance on the part of the author with the subject of his essay. If proof were needed, this is alone sufficient to give the reader confidence in all the details of the author's narration of his experiences with the Osprey.

It might be urged that the Osprey, in the haunts where Mr. Abbott's studies were carried on, was an easy subject, because the

birds had for generations been accustomed to man. Such a bird, however, is of none the less interest, because available close to a great metropolis. In fact this contingency adds general interest. The Osprey has been treated before in many places, both biographically and photographically, but, in spite of its accessibility, always in a desultory fashion. It seems strange that expeditions are continually being undertaken to remote regions for the purpose of making life studies of particular birds seldom known even by name to the people at large. But then, in these cases, there are the elements of travel and adventure, which give that thrill which seems usually necessary to supply the impetus to both the contributors of expenses and the active agent in the enterprise.

Mr. Abbott has established a most commendable precedent, both in his selection of a close-at-hand subject for intensive ornithological study, and in the success with which he has observed facts and presented them in concise and literarily correct form.—J. GRINNELL.

THE BIRDS OF NORTH AND MIDDLE AMERICA: [etc.] by ROBERT RIDGWAY, [etc.] Part V. | Family Petroptochidae—The Tapaculos. | Family Formicariidae—The Antbirds. | Family Furnariidae—The Ovenbirds. | Family Dendrocolaptidae—The Woodhewers. | Family Trochilidae—The Hummingbirds | Family Micropodidae—The Swifts. | Family Trogonidae—the Trogons. | [etc.]. =Bull. U. S. Nat. Mus. No. 50, Part V, pp. i-xxiii, 1-859, pls. i-xxxiii; "issued November 29, 1911."

Part V of Ridgway's great work shows a consistent maintenance of the very high standard set in Part I, which appeared ten years ago. The enormous value of the work as a whole to systematic and faunistic ornithologists is becoming increasingly apparent as a larger proportion of the undertaking yields to completion. We are informed in the preface of the fifth part that the number of species and sub-species described in the five volumes is 2038, and that about 1200 forms remain to be treated in the subsequent parts of the work.

The scope of the present installment is indicated in the title, quoted in its essential details above. The great bulk of the species belong to Mexico and Central America. Only the hummingbirds and swifts include regular representatives north of the Mexican line. Among these we note, of nomenclatural interest, that the limits of the genus *Nephoecetes* are extended to include our Black Swift,

which becomes accordingly *Nephoecetes niger borealis*.

In the statements of ranges of certain of our hummingbirds, notably the Allen and Rufous, we regret to see lack of accord with the facts as now recognized. These inaccuracies are the result of accepting many really erroneous records of occurrence at face value. A lamentable thing, borne in upon us strongly of late, is the confusion that has evidently arisen even among experienced field ornithologists in the identification of breeding hummingbirds. Discrimination has not been carefully drawn between species actually nesting, and species which merely appear in transit through a region even though the latter may occur at a season when other species have eggs or small young. The breeding of the Rufous Hummingbird on the Santa Catalina Mountains, Arizona, and in Santa Clara County, California, are extreme instances of unlikelihood. That the Allen Hummingbird is "resident" throughout the greater part of its range is very much to be doubted.

We call attention to this misfortune here, not in criticism of Mr. Ridgway, who in his function of compiler cannot be expected to analyse at all critically the vast numbers of records to be considered and incorporated, but to point out wherein we must revise our conclusions in the light of more careful field work. Even the last (1910) edition of the A. O. U. Check-List is pretty shaky in its "ranges" of hummingbirds.

But let us again refer to Ridgway's *Birds* in the more happy vein, which it most emphatically deserves. The detailed descriptions, drawn up by an experienced hand, are alone of inestimable value, especially as regards the species of tropical America. A thing we have observed is the tendency, and oftentimes expediency, of adopting well worded and accurate descriptions when once drawn up, in subsequent literature. Mr. Ridgway has already provided characterizations which are recognizable as his, copied far and wide in popular and semi-scientific books on North American birds. In the further development of ornithology of the now lesser known parts of the American continent, Ridgway's skilled treatment will always be the basis.—J. GRINNELL.

THE ECONOMIC VALUE OF BIRD LIFE By RICHARD H. SULLIVAN. [=Agricultural Education, Kansas State Agricultural College, vol. 3, no. 7, pp. 1-47, 30 figs. in text.]

At the present time there is considerable discussion as to the value of the great flood of bulletins that are yearly poured out from

our agricultural experiment stations. Doubtless many of them, if measured by the amount of reading they receive, are hardly worth the paper they are written upon. But often among them appears a paper, and not uncommonly one more popular than scientific, which fills a certain need and therefore finds a wide use.

Before the reviewer is a pamphlet entitled "The Economic Value of Bird Life," by Richard H. Sullivan and published by the Kansas State Agricultural College. Although largely a compilation of facts taken from other authors, yet we believe it meets a need and for this reason will find wide use.

The interest shown by the average farmer as regards a knowledge of the food habits of the common birds is seldom realized. The exhibit which has probably attracted the most interest and attention on the Agricultural Train here in California the last two years, has been one attempting to show the relation of native birds and mammals to agriculture. And in spite of the excellent work on California birds published by the U. S. Biological Survey, there has been a constant demand for a knowledge of the food habits of the common birds and especially for a handbook giving the identification and food habits of the common birds.

"The Economic Value of Bird Life" follows the usual order of papers of its kind, first dealing with bird life as checks on injurious insects and animals, and spending a whole chapter on the importance of insect pests on account of their enormous reproductive power, their remarkable food requirement, and the great economic losses caused by their depredations. The chapter on "Decimation of Bird Life and Its Consequences" places before the reader the stock examples of the increase of insect pests concomitant with a wholesale destruction of their bird enemies. A few local notes regarding the food habits of certain common birds of the state emphasizes the limitations of the paper and brings to the mind of the reviewer the importance of intensive study of the food habits of birds under local conditions; for the well known variation of the kind of food according to the available supply demands this. The evidence furnished by the writer appears to be almost too overwhelmingly in favor of the birds. An impartial presentation of facts, furnishing the reader with the bad points as well as the good, often gains the confidence of a man who otherwise might be antagonized by the one-sided view.

Although the paper in hand cannot be considered a valuable contribution to scientific literature, yet it doubtless fills a popular need and so proves its worth. And even though it

looks very diminutive and unimportant beside the elaborate work issued by the State of Massachusetts, Forbush's "Useful Birds and Their Protection", yet other states can well profit by the spirit of "The Economic Value of Bird Life", and by issuing even such an unassuming publication, fill an important need. —H. C. BRYANT.

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

FEBRUARY.—The February meeting of the Southern Division of the Cooper Ornithological Club was held on Thursday evening, February 29, 1912, in the office of H. J. Lande, 246 Wilcox Bldg., Los Angeles, with President Morcom in the chair and the following members present: Appleton, Chambers, John Lewis Childs, Dawson, Daggett, Gray, Hanna, Hubbs, Howard, Howell, Huey, Antonin Jay, Lamb, Miller, Robertson, Rich, Traey, Willett, and Law.

The minutes of the Southern Division for January were read and approved and the minutes of the Northern Division for February were read.

On motion by Mr. Robertson, seconded by Mr. Willett, and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership, Messrs. Chester Stock, Harry S. Hathaway, and Clarence H. Kennedy, nominated at previous meeting.

Applications were presented as follows: Wm. R. Flint, Throop Polytechnic Inst., Pasadena, Cal., proposed by A. B. Howell; Anna Head, 2730 Belrose Ave., Berkeley, Cal., proposed by J. Grinnell; Mrs. Harriet Williams Myers, 306 Ave. 66, Los Angeles, Cal., proposed by W. L. Dawson; Geo. E. Stone, Vet. Sci. Bldg., U. of C., Berkeley, Cal., proposed by W. P. Taylor; Margaret W. Wythe, 4231 Terrace St., Oakland, Cal., proposed by H. C. Bryant.

On motion by Mr. Willett, seconded by Mr. Howard, and duly carried, the Secretary was instructed to cast the unanimous ballot of those present confirming nominations made by the officers of both Divisions, for Editor, J. Grinnell, for Business Managers, J. Eugene Law and W. Lee Chambers.

On motion by Mr. Robertson, seconded by Dr. Rich, and duly carried, the Southern Division approved the plan of the Business Managers to construct a small building at a minimum cost of approximately \$30.00 on the rear of the property of W. Lee Chambers, for storage of the large accumulation of back

numbers of THE CONDOR, Avifauna, cuts and so forth. W. Lee Chambers agreeing to repay to the Club the amount it invests in the building, at such time as the Club shall no longer have use for the room.

Mr. Dawson had with him a very handsome selection of late photographs of birds showing wonderful success; also several of the original paintings by Allan Brooks which will be put in the Edition de Luxe of "The Birds of California". Adjourned.—J. E. LAW, *Secretary*.

MARCH—The March meeting of the Southern Division of the Cooper Ornithological Club was held on Thursday evening, March 28, 1912, in the office of H. J. Lelande, 246 Wilcox Building, Los Angeles, with President Morcom in the chair and the following members present: Messrs. Blaine, Chambers, Grey, O. W. Howard, Hubbs, Antonin Jay, Judson, Knickerbocker, Lamb, Lelande, Linton, Miller, Rich, Robertson, Willett, Zahn, Law; and as visitors, Mr. George Wood of Hollywood and Mr. McClusky of the new Museum.

The minutes of the Southern Division for February were read and approved and the minutes of the Northern Division for February were read.

On motion by Mr. Willett, seconded by Mr. Howard, and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership, Mesdames Head, Meyers, and Wythe, and Messrs. Flint and Stone, nominated at previous meeting.

Application was presented from Mr. James Buckland of the Royal Colonial Institute, Northumberland Ave., London, Eng., proposed by Mr. W. Lee Chambers.

The committee appointed to make recommendations in regard to game laws for southern California made the following recommendations which, on motion of Mr. Miller, seconded by Mr. Chambers and duly carried, were adopted and ordered filed:

	OPEN SEASON	BAG LIMIT
Valley Quail	Oct. 15-Nov. 15	20 per day
Mountain Quail	Sept. 1-Dec. 1	10 " "
Mourning Dove	Sept. 15-Oct. 15	20 " "
Band-tailed Pigeon	Nov. 1-Mar. 1	20 " "
All Ducks	Oct. 15-Feb. 15	20 " "
Wilson Snipe	Nov. 15-Apr. 15	20 " "
Killdeer	Oct. 15-Feb. 15	20 " "
Rail	Nov. 1-Dec. 1	15 " "

Closed season for at least 2 years and longer if possible—Ibis, Avocet, Stilt, Godwit, Yellow-legs, Willet, Curlew, Black-bellied Plover, Mountain Plover.

Be excluded from game birds and en pro-

tested list—All other Waders, including Sandpipers, Phalaropes, Dowitcher, Knot, Sanderling, Tattler, Semipalmated and Snowy Plover, Surf-bird, Turnstones, and Oyster-catchers.

Pump guns for all game birds be prohibited after January 1, 1915.

On motion by Mr. Howard, seconded by Mr. Miller, the above committee was continued and instructed to make a list of the birds commonly considered harmful, but in reality beneficial, and make an outlined plan looking toward distributing and posting such facts where they will come to the attention of gunners.

A few brief notes from Coeur d'Alene, Idaho, by Mr. H. J. Rust, were read by the Secretary. Adjourned.—J. E. LAW, *Secretary*.

NORTHERN DIVISION

MARCH—The monthly meeting of the Northern Division was held at the Museum of Vertebrate Zoology, Berkeley, on Saturday evening, March 16. President Coggins was in the chair, and the following members present: Miss Atsatt and Miss Heald, and Messrs. Brown, Boyce, Camp, Carriger, Gifford, Grinnell, Ritter, Storer, Taylor, and Swarth. Professor H. B. Torrey and Mr. A. C. Chandler were visitors. The paper of the evening, "The Relation Between Size of Wings and Extent of Flight in Birds," by Professor W. E. Ritter, was taken up first, and the reading of the paper, with the subsequent discussion, occupied most of the session.

After a short intermission the routine business before the meeting was taken up. The minutes of the February meeting were read and approved, followed by the Southern Division February minutes. The following, whose names were presented last month, were elected to membership: Miss Anna Head, Miss Margaret W. Wythe, George E. Stone, Frank H. Renick, Lloyd Servis, and Frank M. Phelps.

New names were presented as follows: Mrs. Harriet Williams Myers, by W. L. Dawson; Wm. R. Flint, by A. B. Howell; James Buckland, by W. Lee Chambers.

Mr. Taylor, Chairman of the Conservation Committee, gave a brief summary of the work accomplished, and an outline of the plans of future work.

Mr. Storer suggested for the consideration of the Club a plan for the acquisition and care of a series of photographic slides, dealing with ornithological subjects, to be held for the use of Club members. The chair appointed Mr. Storer a committee of one to look into the matter, and ascertain the practicability of the idea. Adjourned.—H. S. SWARTH, *Secretary*.

For Sale, Exchange and Want Column.—In this space members of the Cooper Club are allowed one notice of about 35 words in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. Notices must be written plainly, on one side only of a clean sheet of paper. For this department address W. LEE CHAMBERS, *Eagle Rock, Los Angeles Co., Cal.*

WANTED—I will give two dollars cash for EACH number, in ORIGINAL COVERS, CLEAN and in PERFECT CONDITION for binding, of the following publications, to-wit: Wilson Bulletin, nos. 4, 6, 7; The Osprey (new series), vol. I (1902), no. 7; The Oologist, vol. III (1886) vol. IV (1887), no. 1; vol. V (1888), no. 6; vol. VI (1889), no. 4; The Journal of the Maine Ornithological Society, vol. IV, numbers 3 and 4; vol. V, no. 3; The Iowa Ornithologist, vol. II, no. 4; vol. IV, nos. 2 and 4.—G. H. MESSENGER, President Linden Bank, *Linden, Iowa*.

WANTED—Correspondence with persons who who have done any work on Birds, Mammals, Reptiles or Amphibians of Wyoming. Send names and addresses of yourselves and friends to ERNEST PILLSBURY WALKER, *Dept. Biology, University of Wyoming, Laramie, Wyoming*.

FOR SALE—Ridgway's "Birds of North and Middle America," parts 1-2-3-4, bound in half black leather. Price \$15.—H. S. HATHAWAY, *Box 1466, Providence, R. I.*

WANTED—Auk, July 1910; Condor VII, nos. 4, 5, 6; Iowa Ornithologist, vol. IV; Widmann's "Birds of Missouri"; 16 gauge gun with .32 auxiliary barrel.—J. L. SLOANAKER, *411 Spring St., Newton, Iowa*.

WANTED FOR CASH—Clean and in good condition for binding, "Bulletin of Cooper Club", vol. I, nos. 5 and 6.—GEO. W. SCHUSSLER, *1345 Oak St., San Francisco, Calif.*

FOR EXCHANGE—Foreign sets of game birds; cranes, storks, parrots, etc., for sets of waders, raptors, sparrows, etc. Many sets of one kind taken.—J. CLAIRE WOOD, *179 17th St., Detroit, Mich.*

FOR SALE—Country Life in America, 20 vols., with eight numbers of Country Calendar, all in good condition, \$20; O. & O., vols. 9 to 16 handsomely bound in morocco with gilt edges, \$10. Want bird magazines in lots.—LAUREN TREMPER, *136 No. Dewey St., Philadelphia, Pa.*

WANTED—Vols. 1 to 6 inc., of Auk; Cones' Birds Colorado Valley. Offer Ridgway's Birds No. & Mid. Am., parts 1 to 5 inc., or cash, skins or eggs from this section. Oologists

please take sets with cow bird eggs in them for me, nests included.—H. H. BAILEY, *Newport News, Virginia*.

NIDIOLOGISTS FOR SALE—Vol. II, complete, \$1.50; vol. III, complete, \$2.00; vol. IV, complete, \$1.50, in parts as issued, with covers; as new.—W. LEE CHAMBERS, *Eagle Rock, Los Angeles Co., Calif.*

WANTED—Wilson Bulletin 2, 4; The Oologist, Utica, N. Y., vol. I complete; II, 1, 2; III, 8, 9; IV, complete; V, complete; Bulletin of the Cooper Ornith. Club, vol. I, odd nos. W. LEE CHAMBERS, *Eagle Rock, Los Angeles Co., Cal.*

WANTED—Ornithologist & Oologist, vol. 13, no. 2, Feb. 1888; Osprey 3, no. 7. O. WIDMANN, *515 Von Versen St., St. Louis, Mo.*

WANTED.—Of the Utica Oologist, the following back numbers for which I will pay the highest cash price, viz: Volume II, nos. 1, 2, 3; vol. III, nos. 9, 12; vol. IV, no. 7.—R. M. BARNES, *Lacon, Ill.*

WANTED—Correspondence with all persons who have done any kind of ornithological work in Wyoming. Send me names and addresses of yourselves and friends. ERNEST PILLSBURY WALKER, *Dept. of Biology, Univ. of Wyo., Laramie, Wyo.*

WANTED—Osprey, vol. 1, No. 2; Osprey, vol. 4, nos. 8, 9, 10. C. J. PENNOCK, *Kennett Square, Pa.*

WANTED—A few skins of Golden Plover in exchange for California skins and sets, also A1 set of Black Oystercatcher to exchange for set of Woodcock. G. WILLETT, *2123 Court St., Los Angeles, Cal.*

WANTED FOR CASH—Best market prices paid for Bird-Lore, vol. 2, no. 2, and Wilson Bulletin, nos. 4, 6, 7 & 8. LOUIS S. KOHLER, *Bloomfield, N. J.*

WANTED—Choice sets of 453a—455a—363—469—640—646—646b—947—651—652b—690—662—663a—664—672—675a—681c—681e—682—537—540—540a—540b—542—542b—546a—554a—559—563a—565—566—567e—568—570a—573a—574a—576—579—580—580a—580b—582—585—585b—594—594b—597a—610a—621—525—629a—629c—630—631a—632c—634. A. E. PRICE, *Grant Park, Ill.*

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Number 4



COOPER ORNITHOLOGICAL CLUB

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Volume XIV

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BIRDS OF THE COTTONWOOD GROVES

By FLORENCE MERRIAM BAILEY

WITH TWO PHOTOS

WHEN following the old Santa Fe Trail between Santa Fe and the Pecos Mountains, we pitched our tents for a few days' work near Glorieta in a grove of the narrow-leaved elm-like cottonwoods whose slender trunks branch above the tops of the nut pines and junipers of the region, and whose arching willowy branches hang low over a brilliant flower garden; a grove of such rare attractiveness, surrounded as it is by grave conifers, that it is commonly known as The Park, although the Spanish name Glorieta—bower or arbour—seems more appropriate. Imagine the feelings of the old botanical explorers when, after following the Santa Fe Trail over five hundred miles of plains, they arrived at this garden spot! To the ordinary traveler the groves of narrow-leaved cottonwoods, encountered occasionally on the edge of the yellow pine belt, are among the most beautiful spots in the west, where it is often hard to make comparisons in beauty. The delicacy of the foliage gives exquisite effects in the morning sunlight, and almost the effect of beech woods in the moonlight. In this Glorieta of the Santa Fe Trail the wild flower garden under the trees was bright with luxuriant painted cups, lupins, delicate pentstemons in red, purple, and white, and a deep pink phlox that was really a brilliant flower.

The beautiful grove, at the time of our visits—July, 1903—was full of birds. The loud buzzing of the Broad-tailed Hummingbird told of its presence among the flowers, and overhead among the branches the songs of Western House Wrens and Swainson and Plumbeous vireos persisted when all else was quiet. At dusk the calling of poor-wills and the booming of nighthawks was heard. During the day there were the voices of birds from the open country below and those from the edge of the mountain forest above—the *henk, henk*, of the Rocky Mountain Nuthatch and the cheery call of the Mountain Chickadee being mingled with the *tu-whit, tu-whit, tu-whit*, of the Gray Titmouse, the lisping of goldfinches, the

'willowy' note of the Red-shafted Flicker, the monotonous mew of the Green-tailed Towhee, the bright song of the Spurred Towhee, the loud calls of Cassin Kingbirds and crested jays, the soft cooing of doves and the harsh croaking of a family of talkative young ravens.

On the edge of the grove in a clump of bushes a Western Chipping Sparrow had a nest, and within the grove were found a number of nesting holes in cottonwood trunks or branches. Of the householders, a pair of Sparrow Hawks were feeding young, two families of jolly excitable Western House Wrens were singing and fluttering their wings with abandon, and a less demonstrative Chestnut-backed Bluebird perched on a few inches of broken branch close to the trunk of a tree, uttering an occasional low sweet warble. At nest holes high up in a tree trunk we were delighted to discover beautiful Violet-green Swallows going in and

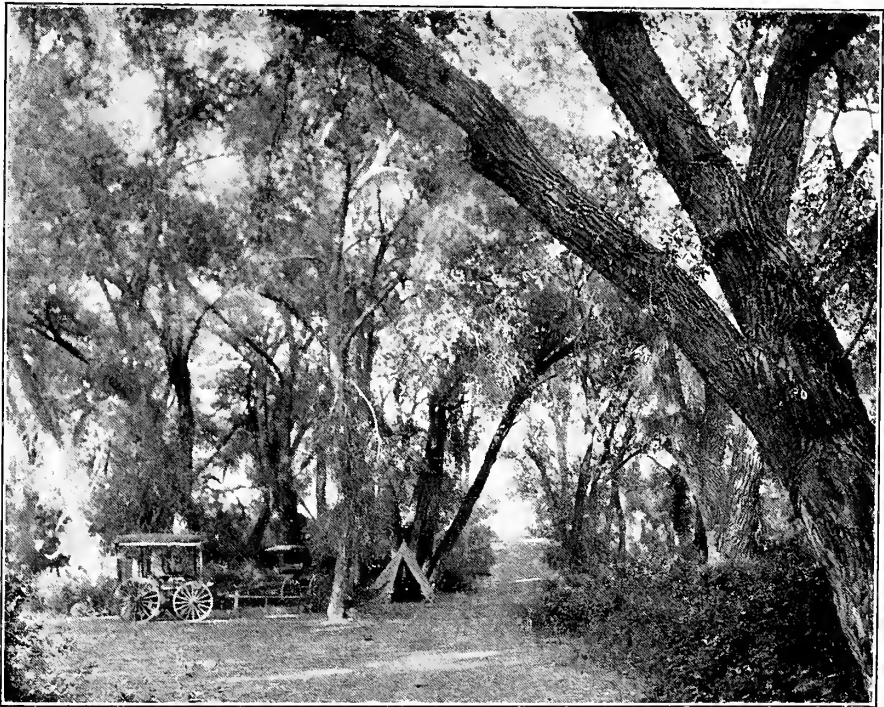


Fig. 42 THE GLORIETA OF THE TAOS INDIANS

Courtesy of Biological Survey

out. It was altogether a most lovely place. Big yellow butterflies fluttered through the delicate foliage of the grove, and before mountain thunder storms radiant white cloud piles were seen through green oriel windows.

Another beautiful park, in which the stately trees spaced a grassy floor, was in the Conejos River bottoms, just across the line in Colorado. We were there in early September, when bands of migrating warblers and their associates often passed through the cottonwood tops. As I stood in the shadow breathlessly watching the approach of one such troop, Long-tailed Chickadees worked slowly along from tree to tree stopping to hang head down over some dainty morsel, Golden Pileolated Warblers whipped about, and Audubons hunted energetically through the branches, while a quiet Townsend sat looking around enquiringly

for its prey; Pygmy Nuthatches chattered softly, vireos sang their leisurely songs, and one hunted so near that its eye-ring, lores, and wing bars stood out conspicuously; while a preoccupied Orange-crowned Warbler coming from the greenery toward the light almost flew against my arm hovering unsuspectingly close to my face. As the busy throng hunted through the cottonwood tops, a pair of Cat-birds mewed in the thicket below, and Western House Wrens and Green-tailed Towhees went about their lowly business. Among the visiting migrants one solitary Rocky Mountain Creeper was seen on a cottonwood trunk.

Another grove of the beautiful cottonwoods near the Taos Pueblo, the Glorieta of the Indians, was perhaps the most notable that we saw. The old trees had seamed patriarchal trunks and their high-arching branches carried

their finely cut leafage low to the ground. Many of the great trees had twin trunks, some stood alone, others in brotherly groups. An artist when visiting camp talked enthusiastically of the subtle tints of their bark and the effect of afternoon sunshine permeating their delicately foliated green tops. The cottonwood trunks rose from a dense thicket of undergrowth—scrub oak, juniper, and wild plum, tangled with rose and overgrown with poison ivy and clematis whose festooning vines made banks of green and white bloom. In this thicket in which our camp was a cleared circle, birds abounded. Spurred Towhees scratched among the leaves and flew up to sing on the plum bushes, and one black-headed parent was discovered busily feeding grown young who were following him around teasing with hungry insistence. A small Wright Flycatcher, when not too busy feeding its young in the nest over our tent, kept up a pleasant *see-twick, see-twick, see-twick*, and *see-hoo*, while a Western Flycatcher reiterated *cat-it, cat-it*, and vireos and many other small feathered householders sang and hunted in the shade of the tree tops in the sunny mornings, filling the grove with their delightful music.

A teasing song that I did not recognize, one morning led me into the dense growth bordering the irrigation ditch of the Taos Indians. When whistled to, the invisible bird answered back promptly—or so it seemed—between songs moving about getting his breakfast. But where was he? When finally discovered, his dark gray head and breast were cut off so sharply from the yellow belly that went

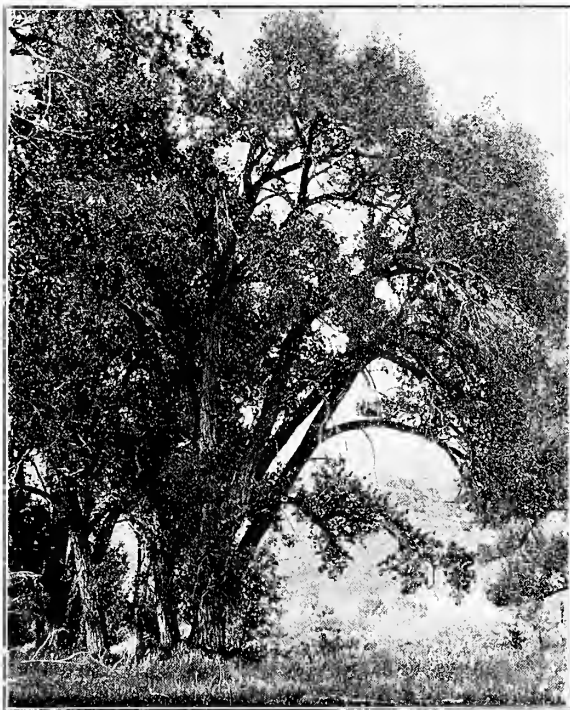


Fig. 43. THE NARROW-LEAFED COTTONWOOD
Courtesy of Biological Survey

with the sunlit branch below, that the only wonder was that *tolmiei* had ever been separated from his background. For it was he, the lovely little Macgillivray Warbler, an old friend of the Sierra and close relative of *philadelphia*, the mourner of the east: a most charming bird, when he sat on a branch in the sun and threw up his head to sing his rich finch-like song. A few days later under the cottonwoods in a dense tangle of wild plum, wild rose, maple, and poison ivy, *tolmiei* was encountered in a still more attractive role. The absorbed musician was now the anxious guardian of the nest. He and his mate with food in their bills circled around the intruder chipping and switching their tails noncommittally. When they passed through a patch of sunlight the green on their backs warmed up prettily, and when the female went to a distance the white spots on her eyelids proved a good mark for an intimate friend to follow. And—there was the nest! Only about a foot above the ground in a small bush overgrown with clematis the pretty cup held four precious but undeniably plain nestlings with fuzzy heads and yellow bills.

In wandering about the grove we sometimes met a secretive pair of birds with a suggestive billful flying swiftly where we could not follow, or found a feathered parent trying to get its unduly trustful young out of our path—among them, robins, wrens, and towhees—and one day—beside the road outside the grove—we were stopped by the pitiful cries of a pair of Catbirds whose last young one had just been killed. Its little headless body was lying in the nest bearing mute testimony to the horrid act of some pitiless prowler. Eastern Catbirds seemed singularly out of place here, among Macgillivray Warblers, Audubon Thrushes, Black-headed Grosbeaks, Mountain Bluebirds, Violet-green Swallows, and other westerners, but they were near the limit of their southwestern range.

Near the edge of the grove a Red-naped Sapsucker whose family were out of the nest was seen a number of times flying from a stub diagonally to the ground where, on investigation, there proved to be a colony of ants.

Outside the grove the arid sagebrush flat dotted with piñon pine and juniper marked off by the water line of the creek and its irrigation ditches offered congenial homes for the Woodhouse Jay and the green towhee; and a stealthy brooding green towhee with rufous crown and white chin much to our delight was caught slipping from her nest in a clematis-clad sagebush near the ground. About the clumps of red gilia bordering the woods, Broad-tailed Hummingbirds whizzed noisily, darting off with such lightning speed that they were not followed home. Goldfinches often passed over, and one party consisting of a male and several females flew down to a cliff rose and the male began tweaking out the long-tailed carpels of *cercocarpus*.

From the sagebrush we looked up over the foothills to the timbered mountains above, the old hunting grounds of the Taos Indians, and from the ridges and the canyons in the evenings came the familiar *peent* of nighthawks, and that most deliciously soothing note of western twilights, *poor-will*, *poor-will*, *poor-will*, *poor-will-low*.

NOTES ON THE WADING BIRDS OF THE BARR LAKE REGION,
COLORADO

By ROBERT B. ROCKWELL

WITH THIRTEEN PHOTOS BY THE AUTHOR

THE previous papers relating to the bird-life of the Barr Lake region, which have appeared in *THE CONDOR*, have dealt with species which, either through their relative abundance or through the ease with which their nests were located, have made possible a more or less connected account of their breeding habits. The species mentioned in this paper are on the other hand species which breed in such limited numbers, or whose nesting habits vary so little as to



Fig. 44. TYPICAL NEST AND EGGS OF BITTERN

make an extended study of these habits either impossible or so little removed from the ordinary as to be unworthy of publication.* It will therefore be the purpose of this paper as far as is practicable to lay before the reader (even at the risk of a disconnected recital) only those facts which throw new light upon the habits of this very interesting class of birds. As an aid to easy reference it is probably best to treat each species separately in the order of the A. O. U. nomenclature.

***Botaurus lentiginosus.* AMERICAN BITTERN.**

Bitterns were among the commonest birds around all the rush-bound ponds, but owing to their retiring habits they were seldom seen except when flushed, and as they were close sitters fewer nests were found than the relative abundance

*All the notes upon which this paper is based were taken in company with L. J. Hersey.

of the birds would lead one to expect. All the nests found by us conformed closely to the published descriptions, and there was practically no variation in material, construction or location. The young are very queer looking little balls of yellowish down, from which protrudes a long sharp bill, and the most malignant pair of eyes to be found in the bird world. In fact I know of no bird disposition that could equal that of these helpless little creatures in genuine "cussedness". The slightest noise or motion transforms the cuddling little chicklets into evil-looking little fiends, that attack an outstretched finger or strike with the ferocity of a tiger. Their note of anger is a loud, forbidding hiss, very snake-like in quality (possibly a natural protection from the bullsnares which infest their nesting grounds) and more than one nest was found that would have otherwise been passed by but for the demonstration occasioned by our approach. As soon



Fig. 45. YOUNG BITTERNS IN NEST

as they are able to leave the nest, this aggressive nature deserts them and they are the same skulking secretive birds as the mature adults, although they show some fight if handled.

One peculiar example of "bittern nature" came to our notice. While working through a very dense cover of cattails and rushes we came upon an adult bittern which permitted us to pick it up. A thorough examination failed to reveal any injury, so we decided to photograph our captive. However, when we endeavored to pose him he would either flop down in a most dejected heap or would dart for the rushes with most surprising speed, which would be the occasion for some highly edifying (for the other fellow) speed tests upon our part. Finally after a dozen fruitless attempts we decided to see if his wings were injured so tossed him as high as possible into the air. He very promptly and

gracefully took wing and our last glimpse of him showed him flying true and strong over half a mile away. Whatever induced that bird to permit us to pick him up and handle him in the way we did will of course remain a mystery.

The birds arrived in the latter part of April (the 25th) and eggs were laid the latter part of May. An unusually early nest contained three young and two eggs May 26, 1906. A nest containing two fresh eggs on May 24, 1907, contained freshly hatched young on June 22. The young develop much faster than young of the Night Herons, and upon the strength of rather scanty data I think they leave the nests within two weeks after hatching.

Rallus virginianus. VIRGINIA RAIL.

Porzana carolina. SORA.

Both species of rails nested in large numbers, the Virginias apparently being somewhat commoner than the Soras. Both species frequented the lush, wet,



Fig. 46. NEST AND EGGS OF SORA SHOWING GRASSES BROKEN DOWN OVER NEST TO FORM A SORT OF CANOPY

seepage land and the nests were almost without exception found in clumps of dense, long, round-stemmed marsh grass. The concealment of these nests was wonderful, fully equalling if not surpassing the best concealed nests of the Teal ducks. It was practically impossible to flush the birds directly from their nests. They would skulk through the grass for a dozen feet or more and then take flight. Even where we knew the location of the nest and dashed up at full speed we were seldom able to make the bird take directly to the air.

The habit of the Soras of bending over the tops of the grasses and rushes surrounding the nest to form a sort of canopy over it is I believe peculiar to this species, and well built nests of this type are among the most beautiful of the ground nests.

Eight eggs appeared to be the average set of the Virginia Rail although one set of eleven eggs was found. On the other hand we encountered several birds incubating very small sets. Two or three sets of three and four incubated eggs were examined; and one persistent bird, found with a nest containing one egg on May 18, 1907, was visited weekly and was still brooding the single egg three weeks later, on June 8. The young rails leave the nest very soon after hatching and are quite noisy. Several young Virginias examined were covered with coarse *jet black* down.

The Sora sets averaged somewhat larger, sets of ten and eleven being common, and two sets numbering thirteen and fourteen eggs respectively were found. In many instances one or more eggs from a nest would be found on the ground near the nest, whether displaced intentionally or accidentally by the parent we could not discover. The average date for fresh eggs of the Soras was about



Fig. 47. TYPICAL NEST, EGG AND YOUNG OF COOT

June 15 and we found that many of the sets hatched about July first; but the Virginias were fully a month earlier. One half-grown young Virginia was found June 15, 1907, and a week later the rushes abounded with them. One belated set of seven fresh eggs was found July 6. Data is accumulating steadily, that will eventually place the Virginia Rail definitely among regular Colorado winter residents.

Fulica americana. COOT.

Second only to the Yellow-headed Blackbirds in numbers come the Coots. Every lake and pond was alive with them, and literally thousands of these birds are hatched every year along the Barr chain. The nesting season extends through May, June and July. Our earliest complete set was found April 27, the first egg of which must have been laid April 18. This set hatched May 11. Nests with eggs were seen as late as July 21, and immature birds were much in evi-

dence until early August. In the large number of nests examined were found wide variation in construction and location. Most of the nests were built well out toward the edge of the cattails over water three or four feet deep, others were built in close to shore in very dense cattail thickets. One nest was found built on dry ground, another fully two feet above the ground on a platform of dead cattails, with a neat run-way leading up to it; and still another nest fully four feet above ground in the lower branches of an apple tree, the water of the lake having receded that much after having inundated the orchard. Two nests were seen far out on open water that were readily visible at a distance of one hundred yards. One nest was found that looked exactly like a grebe's nest; another was built entirely of weed-straws; still another entirely of freshly cut *green* cat-tails and one over deep water was made entirely from green moss brought up from the bottom of the lake.

Complete sets ranged in number from six to thirteen and one set at present in the writer's collection contains seventeen eggs. Minute examination of this set has failed to reveal two types of eggs as would likely be the case if this set was the product of two birds. When found the eggs in this set were arranged in two layers in the nest, and even then it must have been practically impossible for the brooding female to cover the entire clutch. In several instances we proved that an egg was deposited each day. Incubation is apparently not begun until the set is complete, as all the eggs in a nest usually hatched on the same day.

The parent birds when disturbed during incubation have a very peculiar fashion of swimming out a few yards from the nest, uttering a low moaning or croaking note of protest. Then with head low over the water, feathers puffed out and wings held away from the body, the bird will suddenly rise just off the water, and by kicking rapidly backward with both feet, will send a shower of spray in the general direction of the intruder. This performance will often be repeated time after time and is a very grotesque and expressive method of exhibiting the bird's displeasure.

The parents are quite devoted to their nests but will seldom allow one to approach closer than a dozen yards before seeking safety out on the water, but seldom if ever do they take flight upon leaving the nest and then only in cases where they are greatly surprised.



Fig. 48. NEST OF COOT BUILT ON PLATFORM OF DEAD RUSHES TWO FEET ABOVE GROUND WITH RUNWAY LEADING UP TO EGGS

The young are covered with coarse black down, with a bald spot on the top of their heads of a livid red color. They swim with wonderful strength and speed, a baby only a couple of days old swimming almost as fast as a man can walk. They take advantage of natural cover much as the young grebes do, but seem less wild than any of the other young wild birds.

***Steganopus tricolor.* WILSON PHALAROPE.**

The most baffling bird as regards nesting habits with which our field work brought us in contact was this pretty phalarope. In point of numbers they were second only to the Killdeer among the shore birds, and throughout the nesting season there was hardly a trip in which we did not encounter parent birds whose actions made it plain that we were very close to their nests; yet in all these trips



Fig. 49. FREAK NEST OF COOT COMPOSED ENTIRELY OF
YELLOW WEED STALKS

scattered over several years, the writer has been favored with the sight of but two nests.

The birds arrived late in April and by May 10 were seen in goodly numbers, usually in flocks of fifty or more. A week or two later the birds were still in flocks but were apparently mated. During 1906 evidences of nesting were not noted until June 10; in 1907 no anxious parents were noted until June 15; but in 1908 the birds were unusually numerous and showed every indication of the proximity of nests as early as May 29. In fact one of the two nests mentioned above was found June 16, and on that date contained three young just hatched and one egg which was afterward found to contain a fully developed dead embryo. This nest was a scanty affair of dry grass built in sparse marsh grass fully 100 feet

from the shore line on a small island and was upon thoroughly dry ground. The nest was discovered through the tell-tale actions of the parent.

That the nests are wonderfully well concealed both through the protective coloration of the eggs and through the cunning of the parent birds is beyond question; yet this alone would hardly explain our lack of success in finding these nests, for had the birds been actually nesting in the numbers their relative abundance would seem to indicate, it would hardly have been possible for us to fail in our search so consistently. The suggestion was offered that while the birds were quite abundant each year, possibly only a small proportion of them were breeding birds, and that the non-breeders joined the breeding birds in a demonstration when the intruder approached the nesting site. The fact that throughout the nesting season Phalaropes were seen in flocks of various sizes would seem to support this theory.

Recurvirostra americana. AVOCET.

Among the most interesting experiences during the Barr lake work was our study of the nesting Avocets. The birds first made their appearance the last week in April (1907) and on account of their size and conspicuous coloring they were easy to keep track of. We kept a sharp lookout for their nesting site throughout May and June, and finally decided that they must be breeding on a small island far out in the big lake. A trip to the island on June 30, failed to reveal any nests although the birds showed every evidence of having nests nearby. On July 4, 1907, we visited the island again and as we landed, a female Avocet flew up about twenty-five yards back from shore and upon walking directly to this spot we found a nest containing four eggs. About twenty yards from this point we found a second and thirty yards farther on a third, each containing four incubated eggs.

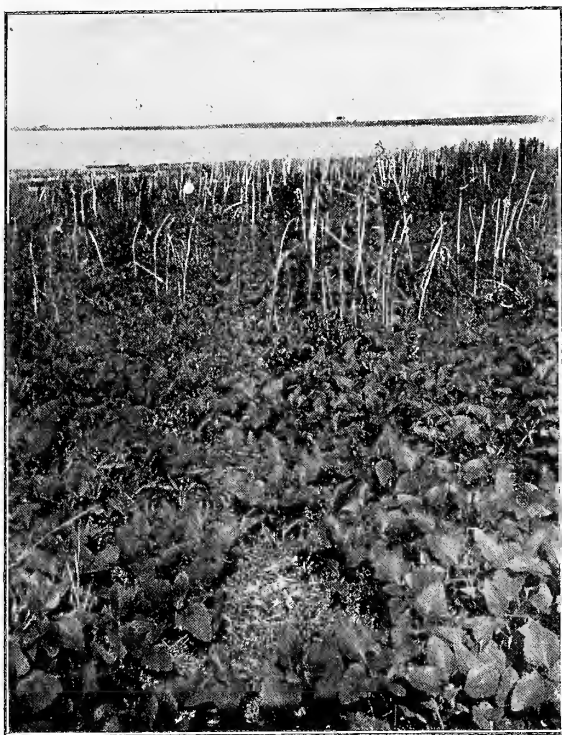


Fig. 50. NESTING SITE OF AVOCET ON ISLAND

The nests were all located in very similar locations, among a young growth of cockle-burrs not over six inches in height and which had probably grown at least half of that since the eggs were laid. The cockle-burrs formed a belt about ten yards wide clear around the island just below the dense blue-stem and other rank grass with which the island was covered and on ground that was under water during the high water of the spring although inundated for a short time only. Two of the nests were very crude affairs, being a mere shallow hollow in the sand with a very few dead weed stalks of short lengths arranged around the eggs. The

other was constructed in the same manner, but was quite well lined with weed stems, so that the eggs did not touch the ground. There was no evident attempt at concealment, the nests all being placed in small open spaces from six inches to a foot in diameter, and with nothing to protect them; but the color of the eggs was sufficient protection to make them quite inconspicuous.

The birds continually showed signs of uneasiness, staying usually at the edge of the water and occasionally flying over us with their loud, ringing cry. Sometimes they would affect a broken wing, but the effort was rather awkward and the deception was very apparent. They acted much as a Killdeer does and while quite demonstrative, did not betray the whereabouts of the nests by their actions, only that they flushed from them directly, instead of running along the



Fig. 51. NEST AND EGGS OF AVOCET

ground before taking wing. When not flying about overhead the birds often lit on the water where they swam easily and lightly, and they seemed at all times very anxious to get back to the nests, returning as soon as we were a short distance from the nests.

Upon our return to the island on June 21, we found that the nests had been disturbed; two of them were deserted and about half of the eggs were missing. On July 28 we found to our sorrow that all the nests had been destroyed; at least so we surmised as we did not find any young birds.

On May 31, 1908, we visited the island again and found to our surprise that the colony was nesting fully five weeks earlier than in the preceding spring. On this date we found eight nests: seven on the island proper and one on the sand-

bar leading to it from the shore (as the water was now very low). The seven were typical nests, built in the zone of pig-weed and young cockle-burrs exactly like those of the preceding year; while the one on the sand-bar was a neat depression in the sand well lined with grass. There was not a particle of vegetation or cover on the sand-bar, but on account of their coloration the eggs were very inconspicuous, even in their exposed position. On this occasion the birds were very noisy and demonstrative and we located the nests readily by their actions.

On June 14 we found that two of the nests had been destroyed, some bird having pecked small holes in the eggs. All the other nests had either hatched or been destroyed as we did not find either nest or young. On June 19 we found another nest of four eggs on the island but still no sign of young birds, and on June 27 this nest was found to have been destroyed as the others had been. We finally concluded that the mischief must have been done by a good-sized flock of non-breeding Ring-billed Gulls which made the island their headquarters.

The birds remained until the latter part of October, well into the hunting season, and their large size, conspicuous coloration and absolute lack of fear of firearms made them easy prey for the thoughtless hunters who frequented the lakes.

Gallinago delicata. WILSON SNIPE.

Up to very recent years the published records of Wilson Snipe as a breeding bird of Colorado, were confined to four records: that of Drew who found it breeding in San Juan County (B. N. O. C. iv, 1881, 85); that of W. E. D. Scott who found it breeding at Twin Lakes, Lake County, at 9,000 feet (B. N. O. C. iv, 1879, 92; and that of Aiken at the San Luis Lakes at 7500 feet elevation and that of Sprague (Cooke) at 9000 feet in the Middle Park. All of these records are Transition and Canadian zone records, and the first two at least are of such an indefinite nature that it is a question whether nests were actually found or whether the breeding record was based only upon the presence of the birds during the nesting season.

From 1905 to 1909 Fred M. Dille found several nests near Altoona, Boulder County, close to the foothills and at an elevation of about 5500 feet. As these sets were taken just inside the Transition zone, the single nest which we found at Barr June 20, 1908, is, so far as I know, the first breeding record for the species within the Upper Sonoran zone of Colorado.

This peculiar bird occurs regularly though not commonly at Barr throughout the nesting season, and the fact that more nests have not been found may no doubt be attributed alone to lack of field work. In fact we encountered several pairs of birds which we were reasonably sure were nesting, but we were successful in one instance only.

This nest was located on (and above) the surface of slightly damp ground at the edge of a good sized area of very soft, boggy land formed by the seepage under the dike of the Big Barr Lake. It was built in the center of a tussock of grass about eight inches in length and was a very neat, well shaped and cupped nest composed entirely of fine dry grass. In construction it was far superior to any shore bird's nest I have ever seen, being so compactly and strongly put together that it was possible to remove it from the nesting site without injury. In general appearance the nest itself is not unlike certain sparrows' nests.

It was not particularly well concealed; in fact from above it was quite conspicuous. The bird flushed when we were about fifteen feet away and made quite

a demonstration. Of the four eggs, one was quite fresh, and the other three were in various stages of incubation.

On several occasions we noted the peculiar "nuptial gyrations" in the air, which have been graphically described by some writers.

REMARKS UPON THE OCCURRENCE OF SEVERAL SPECIES OF LIMICOLAE

W. W. Cooke in the 'Third Supplement to the Birds of Colorado' (Auk, xxvi, 1909, 411), in speaking of the Western Solitary Sandpiper says: "The early publications on Colorado Ornithology included this species among the breeding birds of the state, and the same reference has been continued by subsequent writers. As neither eggs nor young birds have ever been reported from the state the assumption of breeding rests on the presence of the birds in pairs during the summer season. Late investigations have shown that many non-breeding Solitary



Fig 52. NEST AND EGGS OF WILSON SNIPE

Sandpipers remain through the summer far south of the breeding grounds, and also that the southward migration of breeding birds begins soon after the first of July. In the light of these facts it must be considered that, though the species probably does breed in Colorado, yet the actual breeding is not yet proven."

While this statement was written over a year after the last of our work at Barr it confirmed our observations so thoroughly and applied so well to several species beside the one it referred to, that it has been copied verbatim. The most puzzling problem which confronted us was the status of the several species of Sandpipers and other waders, whose breeding ground was generally supposed to be in the far north, which yet were quite common at Barr during at least a portion of the breeding season. The closest attention was given these species, and much time was spent in an effort to definitely establish some of them as breeders, yet

in only one instance did we encounter any birds whose actions gave us any reason to believe that they were actually nesting.

This was a Least Sandpiper which was seen on a small stretch of sandy beach on May 24, 1907; and a week later (May 30) the same bird (presumably) was seen at the same place and exhibited some excitement at our intrusion. The bird was very tame and even when frightened, refused to leave the vicinity of the supposed nesting site. However the most minute search failed to reveal a nest.

As we were unsuccessful in making any definite discoveries the actual dates will be given, leaving the reader to form his own opinions.

Macrorhamphus griseus scolopaceus. LONG-BILLED DOWITCHER. Observed



Fig. 53. NEST AND EGGS OF UPLAND PLOVER

April 26, 27, May 1, 11, 24, and July 5, 1907; and April 26, May 10 and May 17, 1908.

Micropalama himantopus. STILT SANDPIPER. Observed April 27, July 5, and October 5, 1907, and May 9, 1908.

Pisobia maculata. PECTORAL SANDPIPER. Observed April 21, 26, July 28 and October 5, 1907.

Pisobia bairdi. BAIRD SANDPIPER. Observed May 11, July 21, 28, September 2 and October 5, 1907; and May 2, 10, 17, 30, August 15 and 22, 1908.

Pisobia minutilla. LEAST SANDPIPER. Observed April 26, May 1, May 24, May 30, July 5, July 21, 28, September 2 and October 5, 1907; and April 26, May 3, 10, 17, June 14 and June 19, 1908.

***Limosa fedoa*.** MARBLED GODWIT. Observed June 24, 1906; May 11, 17, July 5, 28, 1907; and May 10 and 30, 1908.

***Totanus melanoleucus*.** GREATER YELLOW-LEGS. Observed April 26, May 11, July 4, 6, 14, 21 and 28, September 2, and October 5 and 25, 1907; and April 19, May 3, June 27, July 12, and August 15, 1908.

***Totanus flavipes*.** YELLOW-LEGS. Observed April 21, 27, July 5, 21, 28, September 2 and October 5, 1907; and April 19, 26, May 17, June 28, July 12, August 15 and 22, 1908.

***Catoptrophorus semipalmatus inornatus*.** WESTERN WILLET. Observed May 11, 18, July 21 and 28, 1907; and April 20, May 3, 10 and June 19, 1908.

Throughout this list of dates a remarkable similarity of movement appears to exist; the last three weeks of June being the only ones during the entire breeding season that most of the above species were not seen. It is also significant



Fig. 54. TYPICAL "NEST" OF KILLDEER

that the five species which were seen during this period (namely, Least Sandpiper, Marbled Godwit, both Yellow-legs, and Western Willet) are the species most likely to be found breeding in this locality. Generally speaking the month of June appears to be the month during which all these species are least in evidence, and a decided influx of the birds is seen soon after the first of July. In short the dates here given bear out Prof. Cooke's theory almost to the letter.

***Bartramia longicauda*.** UPLAND PLOVER.

Cooke in his "Birds of Colorado" states that the Bartramian Sandpiper breeds *abundantly* upon the plains. The word "abundant" is at best a relative word; yet during ten years field work the one nest we found near Barr was the only one I have ever seen, nor have I heard of any other Colorado field workers who have actually taken the eggs, and so far as I am aware there are no definite

published breeding records for the state except that of Cooke. Although there is small doubt that the bird breeds sparingly on the plains east of Denver, it can hardly be called common anywhere in Colorado. For these reasons description of this nest may be of value.

The nest which was found June 28, 1907, was located in the midst of a rather thick tuft of sand grass, blue stem, and other dry-land grasses, on open rolling prairie well covered with grass, weeds, etc., and fully two miles from any body of water. It was on the west side of a small knoll on rather high ground and was built in an inconspicuous spot. No evidence of it could be seen fifteen paces away.

The nest was a rather deep depression in the ground sparingly lined with fine weed stems, grasses and a few bits of manure and one or two small feathers.



Fig. 55. YOUNG KILLDEERS JUST OUT OF EGG

The tops of the eggs were about flush with the surface of the ground. The eggs were *not all* arranged with the points turned in toward the center. When the nest was first found the bird flushed at a distance of about fifteen yards, and its cries as it rose in the air brought three other birds within a few minutes. At no time did the birds come anywhere near us, and as soon as we left the nest they flew back to it from a point about a quarter mile distant. On the second visit the parent left the nest when we were fully thirty yards away, and flew off close to the ground with short rapid wing-beats (similar to the flight of a Spotted Sandpiper) and lit about a hundred yards away. While flying it continually uttered a querulous musical whistle. Not long afterward, either this bird or the other parent flew up to a height of fully one hundred yards and circled about us two or

three hundred yards distant, occasionally giving this same whistle. Only once or twice did we hear the full Upland Plover "song".

On June 14, 1908, we located a pair of plover that undoubtedly had a nest not far from the shore of the lake, but several careful searches were unsuccessful. This pair of birds was most demonstrative on July 4 and 5. On July 11 their actions plainly indicated that young ones were near at hand.

***Oxyechus vociferus*, KILLDEER.**

The first sound that greeted us in the morning and the last thing we heard at night was the dreary monotonous cry of the Killdeer, and even in the dead of night their notes were occasionally heard. The birds were encountered everywhere: on the lake shores, in the marshes and often back on the dry prairie.

They arrived about the middle of March (March 10, 1907, is my earliest



Fig. 56. KILLDEER AND FOUR EGGS BURIED BY BURYING
BEETLES AFTER PARENT HAD DIED ON EGGS

date), and by the middle of April were abundant.

Quoting from my notes of April 26, 1907: "The Killdeer have evidently begun nesting as we did not see one-tenth as many around the lakes as we did last week (April 21); but they are common in isolated pairs farther back on dry land. We found two broken eggs on the lake shore and one on the dry prairie."

The earliest nest was found May 10, and the eggs hatched May 16. The bulk of the nests were found during the latter half of May, but nests with eggs were found throughout the month of June. One young of the year was seen July 28, which was unable to fly at that late date. Mr. Hersey was fortunate enough to see one set of eggs hatch. He says the parent birds carried every bit of shell away from the nest within two hours after the hatching. The birds' actions when about the nest were always confusing and we did not flush the parent from

the nest in a single instance. For the most part they remained at a distance calling loudly, and only in one instance did I see a parent simulate a broken wing to lure the intruder away from the nest.

We found one brood of four young which had just hatched and had not left the nest. They are beautiful little striped creatures, and become very quick and active almost as soon as they are dry. They run with surprising speed, and the note even of the tiniest chicks is the exact counterpart of the parent's note, on a smaller scale. The nests, if they could be called such, showed little variation except as to location, but we found them equally common in damp marshy locations (although in all such cases the nesting sites were perfectly dry) and out amid the cactus and rabbit brush of the dry prairie.

The parent of one nest which we had under observation died upon her nest and during the week between our visits, a colony of Burying Beetles buried eggs and parent until only the tip of the tail and one wing showed above the surface of the ground.

The birds began to gather in flocks the last week in July but did not depart for the south until late in October.

THE PRESENT AND FUTURE STATUS OF THE CALIFORNIA VALLEY QUAIL

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WITH MAP AND DIAGRAM

DURING the past year several circulars have been issued by the Bureau of Biological Survey of the United States Department of Agriculture calling attention to the fact that certain of our native birds, and especially the game birds, appear to be diminishing in numbers. In the annual report of the Chief of the Biological Survey for 1911 this statement is made: "The quail and prairie chicken are favorite and legitimate objects of pursuit by sportsmen, but they have been so ruthlessly pursued that they are now generally scarce and in many localities practically extinct."

With the present agitation in regard to the conservation of our national resources, it naturally follows that sportsmen as well as others are becoming deeply interested in the conservation of game. California has been so well supplied with game that she has been rather slow to wake up to the fact that she must needs look to the future in this regard. The past two decades have seen the practical extinction of such big game as the grizzly bear, elk, and pronghorn antelope. Sharp-tailed grouse have not been seen in the state for many years, and the grouse and sage-hen have been greatly reduced in numbers in many parts of the state.

In line with this rise of interest in game conservation has followed much discussion as to the present status of the California valley quail. The general opinion is that these birds have greatly decreased in numbers. It is the purpose of this paper to present what knowledge we have as to the present status of this quail in California, to discuss the factors governing the increase or

decrease of birds in general and of these birds in particular, and to offer, if possible, some suggestions as to ways and means of conserving this valuable game bird.

The sincere thanks of the writer are due Professor C. A. Kofoid, Professor J. C. Merriam, Professor W. E. Ritter, and Mr. Joseph Grinnell, of the University of California, for their helpful criticism and suggestions during the preparation of the present paper.

Three different species of quail are found within the confines of the State of California, the mountain quail (*Oreortyx picta*), the California valley quail (*Lophortyx californica*), and the Gambel or desert quail (*Lophortyx gambeli*). The first is distinctly a high mountain bird and is seldom found below 3000 feet elevation. The Gambel quail is known only in the southeastern part of the state, where it replaces the valley quail on the desert. The California valley quail is by far the most abundant of the species. Three geographical races, or sub-species of this species, varying slightly in color, are recognized. As these races do not differ in habits they are not distinguished in this paper.

It is always a difficult matter to obtain any adequate idea of the numbers of any species of bird because, as a rule, little reliance can be placed on the opinions of different observers. What might seem a large number to one observer might seem a very small number to another. In order that some idea of the numbers of quail at the present time, compared with the numbers of several years ago, might be obtained, the Fish and Game Commission sent out lists of questions to its deputies throughout the state. By plotting the reports of the deputies on the map of the state, it is easily seen that the two places where there is a consensus of opinion that quail have decreased, are southern California and the upper part of the San Joaquin Valley. (See map, fig. 57.)

The reason for the decrease in these particular localities can easily be traced to the hunter. Southern California is well populated and has at least a due proportion of hunters, as is shown by the sale of hunting licenses, over 12,500 being sold in 1910. The hunting grounds easily accessible from the bay cities naturally show a decrease also. The intensive cultivation in these same localities causes a destruction of food and cover, essential to the maintenance of quail. The answers also show that whereas in some localities there has been a decided decrease, in other localities the birds have either held their own or have increased. Since many of the deputies have only been acquainted with their particular locality for ten years, the records, in most cases, give an idea of the status for this length of time only.

When descriptions of the numbers of quail existing twenty years ago are compared with present conditions, it must be admitted that there are many less quail at the present time. Mr. T. S. Van Dyke, writing in *Outing* in 1890, says: "The statement may seem extravagant, but for many years it was a simple matter for a good shot to bag 200 in a day, all at single shots on the wing. For several years market shooters shipped an average of 10,000 apiece for the season. This hoggish work, with the number crippled and finally killed, has greatly reduced their numbers."

Mr. C. H. Shinn, writing in the same year, in giving the records of two hunters at San Diego, says: "In eighteen consecutive hunts the smallest bag consisted of forty-seven quail and five rabbits; one of the largest bags comprised 187 quail, 8 doves, and 1 rabbit, and no less than six bags ran far above a

hundred quail. A Coronado gentleman shot on the wing twelve dozen quail, and a friend with him, six dozen. The best bag that this first gentleman has made in San Diego County consisted of twenty-two dozen. They go in flocks

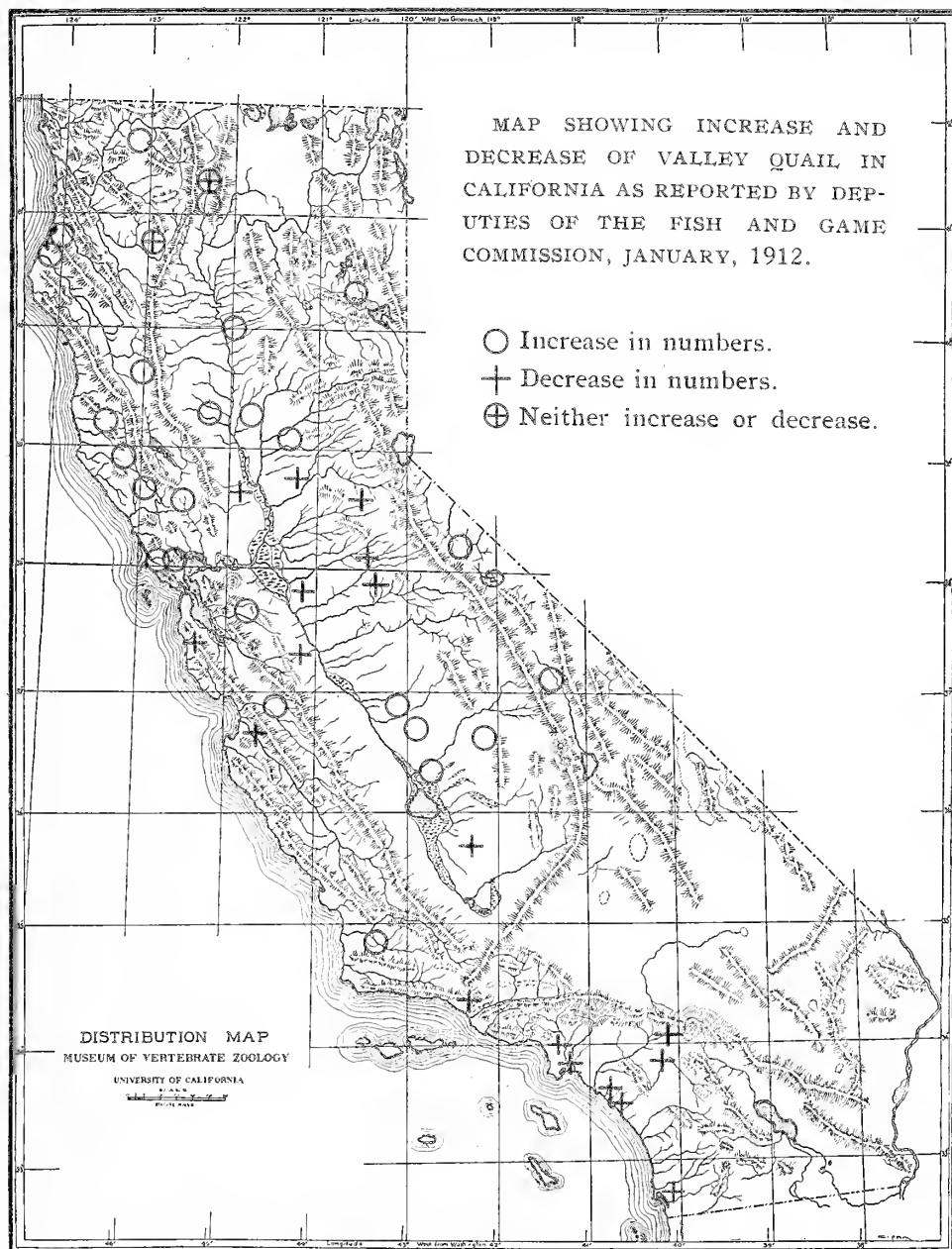


Fig. 57

of 50 to 800 and when a sportsman has studied the lay of the ground and knows the habits of the bird, he can invariably follow up the same flock with little trouble, until he has flushed and shot the greater number. There is no

danger of exterminating the quail on these dry ridges, where there is so much prickly pear cactus, in which they take refuge; and as long as the breeding season is protected no diminution in the autumn and winter quail shooting will ever be observed. I find that even on the valley farms of Alameda County the quail breed in the willows, and flocks of from 50 to 100 maintain themselves in many of the orchards, and have done so ever since the occupation of the region by Americans, though, of course, shot down to a mere handful each winter."

In his report on the "Birds of the Death Valley Expedition," Fisher says of the valley quail: "Throughout the San Joaquin Valley Mr. Nelson found it common about ranches, along water courses, or near springs. It was especially abundant at some of the springs in the hills about the Temploa Mountains and Carrizo Plain. In the week following the expiration of the closed season two men, pot-hunting for the market, were reported to have killed 8400 quail at a solitary spring in the Temploa Mountains. The men built a brush blind near the spring, which was the only water within a distance of twenty miles, and as evening approached, the quail came to it by thousands. One of Mr. Nelson's informants who saw the birds at this place, stated that the ground all about the water was covered by a compact body of quails so that the hunters mowed them down by the score at every discharge." This was in 1893. Last summer and in April of this year parties from the Museum of Vertebrate Zoology of the University of California visited the same general locality, reporting that either none or but very few were to be seen at the watering places.

These quotations give a fair idea of the point of view of competent men twenty years ago. It is needless to call attention to the fact that in the very places mentioned by these men, conditions have changed and that quail are not nearly as numerous as they were twenty years ago. In many places in the state, nevertheless, where there is little intensive cultivation, the protection afforded them the past few years has allowed them to hold their own and in some places to increase.

Having now pointed out the fact that quail have greatly decreased in numbers in some parts of the state and have apparently increased in numbers in other parts, let us pass on to a discussion of the factors governing the increase and decrease of birds in general and of quail in particular. Professor S. A. Forbes was one of the first to point out the importance of studying the natural order as a whole, and understanding the disturbances to which it is subject. In a paper entitled "On Some Interactions of Organisms," he says: "While the natural order is directed to the mere maintenance of the species, the necessities of man usually require much more. They require that the plant or animal should be urged to superfluous growth and increase, and that all the surplus, variously and widely distributed in nature, should now be appropriated to the supply of human wants. From the consequent human interferences with the established order of things numerous disturbances arise,—many of them full of danger, others fruitful of positive evil. To avoid or mitigate the evils likely to arise, and to adapt the life of his region more exactly to his purposes, man must study the natural order as a whole and must understand the disturbances to which it has been subject. Especially he must know the forces which tend to the reduction of these disturbances and those which tend to perpetuate or aggravate them, in order that he may reinforce the first and divert the second."

There are at least six factors that have a direct influence on the numbers of any species of animal, the importance of each varying greatly according to

locality. They are as follows: Food supply, cover, predatory animals and birds, disease, weather conditions, and the hunter.

There is an old biological law which states that birds and animals under natural conditions will increase up to the limit of their food supply. On any given area there is food and protection for a certain population of plant and animal life. Just as soon, therefore, as the food or protection or both are diminished the given area will support less numbers of individuals and vice versa. This law is one of the most fundamental of all natural laws and most of the fluctuations of numbers of a given species can be traced either directly or indirectly to the working out of this law. Such factors as disease, predatory animals and birds, and climatic conditions are usually minor external factors. If it can be shown, then, that the food supply or cover of the California valley quail has greatly decreased in the last twenty years, we should naturally expect a decrease in the numbers of quail. If, on the other hand, it can be shown that the food supply and cover, or both, has not decreased, or has increased, we should naturally expect to find the quail holding their own or increasing in numbers; that is, barring other factors such as disease, an increase of predatory mammals and birds, or hunting. Outside disturbances in the balance, such as the hunter, may or may not have a decided influence on numbers, depending upon the extent of the destruction. A certain small amount of destruction probably would have little or no effect on the numbers, as this depletion would simply leave more room for others and a larger percent of the birds hatched would live.

Under natural conditions, therefore, the food supply of a bird probably has more to do with the numbers than any other thing. The cultivation of land, which is becoming more and more general each year, causes the destruction of the natural food of many of our birds. In a few instances certain birds are profiting by a new supply of food furnished by the crops raised; but in most instances the intensive cultivation of land brings a diminution in the numbers of birds very largely due to a destruction of their natural food. It is pleasing to note that the quail are among the birds which have, to some extent at least, adapted themselves to the new conditions. It has been stated that no birds flourish under so many varied conditions as do the California valley quail; for they can be found from sea level to a mile above the sea, and from the humid coast belt to the desert. They have been found breeding in tules, in vineyards, in the weeds along fences, in orchards, and even in suburban gardens. Vineyards furnish them not only acceptable food but good cover. The quail being largely a seed eater, will turn to grain, grapes, and other cultivated products when its natural food is not available. In spite of this fact, however, the cultivation of great tracts of wild land accompanied with the destruction of such plants as the burr clover, alfalfa, lupine, tarweed, pigweed, and mustard, has diminished the food supply of the quail to such an extent that doubtless it has had a considerable effect on the numbers.

The habits of the quail show them to be closely dependent on cover. There are many places in the state where it could be definitely shown that the destruction of cover has been the primary factor in the diminishing of the numbers of quail. Not only is that cover, destroyed in the clearing of land, of importance, but also the large areas destroyed by fire each year. As the land becomes cultivated, but a small amount of cover is furnished in place of that destroyed. The weeds and shrubs growing along the fences, and the vineyards, probably furnish the best of the new cover.

In some parts of the state the pasturing of sheep is having a direct influence on the quail. Belding, in his "Birds of the Pacific District," written in 1890, speaks of the valley quail as follows: "Rather rare at Red Bluff where much of the country is used for pasturing sheep. Formerly very abundant in the Marysville Buttes but now rare for the same reason. Not only do sheep destroy nests by treading on them, but they prevent the growth of cover, and this timid bird deserts her nest where there is the least cause for so doing." The pasturing of cattle is doubtless a menace to quail in many parts of the state also.

A certain number of quail are claimed each year by predatory mammals and birds. The wildcat, coyote, fox, and skunk are probably the worst offenders among the mammals, and the Cooper, sharp-shinned, and duck hawks, the worst among the predatory birds. The blue jays, the roadrunner, and the gopher snake are reputed to destroy eggs and young. Under natural conditions these predatory mammals and birds were far more numerous than they are at present so that they cannot be considered a very serious factor in the decrease. It seems reasonable to believe that the slaughter of these mammals and birds has kept up with the destruction of the quail so that there is certainly no larger a toll now than formerly. In fact, there is probably a less toll taken by predacious mammals and birds at the present.

Quail appear to be little subject to disease. As far as can be ascertained there is no reference in literature to an epidemic appearing among California valley quail. Certain parasites are not uncommon in these birds, however. Mr. Joseph Mailliard gives his experience with parasites in valley quail in the following words: "In Marin County and, if my memory is correct, in San Benito County also, these birds are frequently found with what appear to be small tapeworms, or with numbers of round, rather blunt worms about half an inch long closely resembling those sometimes found in domestic poultry. Besides I have often found a group of exceedingly small parasites of a bright vermillion color, suggesting fungoid growth, around the vent, but have never examined these with a microscope." Chas. S. Thompson has also called attention to the fact that he has found tapeworms in quail. He says: "At least one-third had tapeworms two and one-half to four inches long in the intestines." The presence of such intestinal parasites is not as a rule very detrimental to the health of the animal, practically all mammals and birds and even man being attacked to a greater or less degree.

In 1906-7 large numbers of bobwhite quail kept in captivity died with what was called quail disease, a disease singularly like the grouse disease of England. At that time post-mortem examination showed the presence of quail disease in the common bobwhite, the California quail, the Gambel quail, the scaled quail, the mountain quail, and the sharp-tailed grouse. The prominent symptoms were first dullness, and then emaciation. Only birds kept in confinement were found infected.

Bobwhite quail kept in captivity have been found infected with coccidiosis, a disease which sometimes attacks poultry. This disease seems to be a common one among birds, for it has been found in grouse, pheasants, pigeons, and is quite a common disease among domestic fowls, especially turkeys here in California. The Committee on Grouse Disease in England, in an elaborate report this past year, shows that one of the diseases which has destroyed such large numbers of grouse in England and Scotland is coccidiosis. Another disease

caused by threadworms (Nematodes), called strongylosis, has also been instrumental in destroying large numbers of these birds. Coccidiosis is a serious disease, the birds attacked by it usually dying from the effects. Whether California valley quail under natural conditions have ever been known to contract the disease I have not been able to ascertain. Such a protozoan disease as this, if it should attack our quail, would doubtless prove a serious menace; but fortunately there seems to be no immediate danger. At the present time, therefore, disease cannot be considered an important factor.

Weather conditions perhaps have more effect on birds which nest on the ground and on birds with the habits of the quail than on other birds. T. S. Van Dyke says on this point: "Extreme drouth is the only natural thing that reduces them. They increase enough to supply the hawks, foxes, wild cats, and owls, and can stand even a reasonable amount of shooting. But when the winter rains fail to make seed enough for its ravenous appetite, this quail knows well before too late. It then declines to mate and remains all summer in the big armies of the preceding year." That quail are able to foretell weather conditions and shortage of food is doubtful; but the fact that quail sometimes remain in flocks during the breeding season has been noted by other observers. Even here we see that the weather conditions are only concerned because they effect food supply.

Inbreeding is sometimes put forth as a reason for decrease, but it can hardly be substantiated by fact. Chickens are often known to inbreed for long periods of time without any apparent diminution in vitality or productiveness. Besides, the quail wander over large enough areas so that there is little danger of effective inbreeding. Then, too, there is no good reason why there should be very much more inbreeding now than there was twenty years ago when every one admitted that quail were in a thriving condition. The fact that quail, even in places where there were small numbers, have greatly increased under sufficient protection, seems in a measure to disprove this theory. Quail being non-migratory, isolation caused by the cultivation of large tracts of land would bring about favorable conditions for inbreeding. The extent to which such isolation could be brought about by intensive cultivation is problematical. The question awaits future development, and so further consideration at this time is not pertinent.

Last, but not least, comes hunting as a factor in the increase or decrease of birds. In many places this has been the most important factor in causing a decrease in numbers. With the increased traveling facilities, and the increased efficiency of firearms, this aspect of the question is yearly becoming more and more important. Twenty years ago hunting involved not only considerable time but considerable inconvenience; today, with the automobile and the increased transportation facilities, a hunt involves but little time and almost no inconvenience. The comparative destruction possible with a muzzle-loader or even with a single-barreled breech-loading shotgun, and an automatic, brings forcibly to mind one of the causes for the decrease in game birds during the last few years. Shooting from automobiles, a practice of the present day, is an easy way of filling the game bag but is a dangerous practice when viewed from the standpoint of conservation. Most game birds, on account of their prolificness, can withstand a certain amount of shooting; but the wholesale slaughter, now made possible by improved methods, undoubtedly oversteps the danger point.

The geometrical ratio of reproduction of plants and animals is large enough to necessitate an increase in numbers were it not for adverse circumstances. For example: The female of each pair of quail, judging from records, lays an average of twelve to fifteen eggs. Various dangers, however, probably prevent the hatching of more than an average of ten young. If all of these young should survive and reproduce, at the end of the second year there would be 132 quail for every original pair. But we know that this is not the case, but that there is usually about the same number each year. This means that the death rate must equal the birth rate, and, in the case of the California valley quail, the death rate must be some five times as great as the normal minimum population. Or, in other words, the life rate, or rate of survival, must be only 2 out of every 130 quail.

Taking a covey of 100 quail, probably at least 40 of that number would

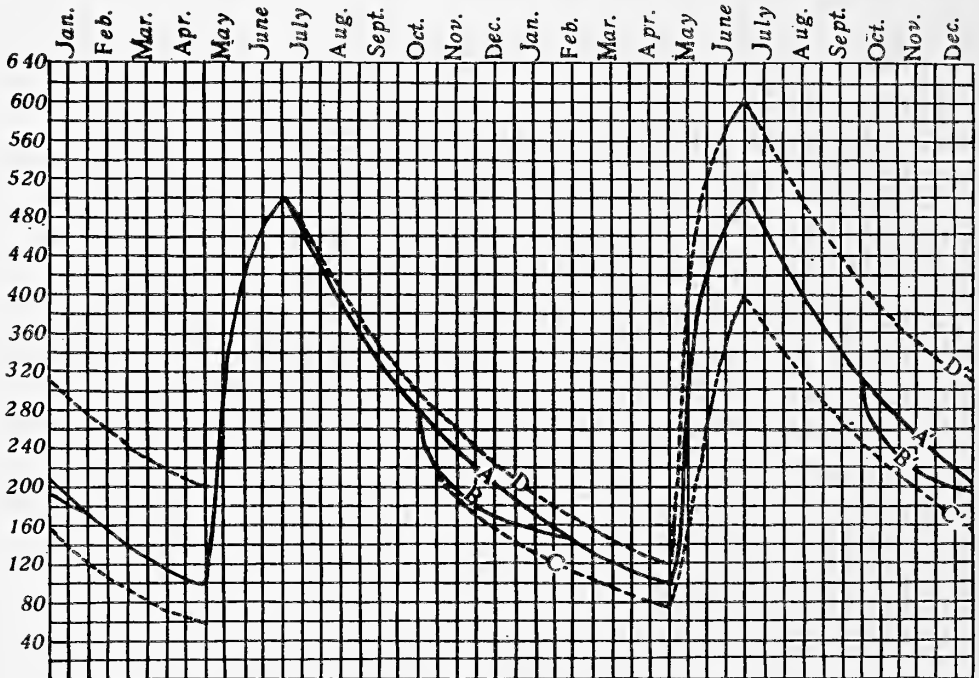


Fig. 58

average a brood of ten young each year. This would mean that just after the hatching season, there would be something like 500 quail where there had been 100. At the opening of the next breeding season this covey, under natural conditions, would have been reduced to the 100 again. Evidently therefore, there would have been a mortality of about 400. There are a great many factors to account for this immense mortality, chief among them being, under natural conditions, lack of food supply and destruction by predatory mammals and birds.

If we make a hypothetical curve, the points to be brought out are made intelligible. If along the left-hand side of the graph are plotted the numbers of individuals, and along the bottom, the months of the year, the maximum and minimum numbers would form a curve such as is seen in A. The minimum numbers can reasonably be expected to exist just before the eggs are hatched,

say early in May. Let this minimum number be represented by 100. By the end of June, just after the hatching season, the maximum numbers would naturally be found. From this time on there is to be expected a decrease in numbers until the minimum of 100 is again reached. The weaker members of the flock will be killed first, and those which can survive till the later part of the winter have then a far better chance of surviving till the breeding season. Hence, the curve drops quickly until February is reached, thus showing a greater mortality during the fall months. At the end of hatching, if forty percent produced an average of ten young, we find the numbers of quail increased from 100 to 500. At the beginning of the hatching season the next year, however, this number has again been reduced to the minimum number of 100. It can be seen then, that, under natural conditions, we are to expect, with a covey of 100 quail, that nearly 400 could be destroyed each year and yet equilibrium would be maintained and the birds would not decrease in numbers.

Suppose that we introduce a new element, shooting. A certain number of birds would still be claimed by the natural forces at work; but if the shooting occurred during the open season, October 15 to February 15, a certain proportion of the birds shot would be birds which would later have died from other causes, and just so long as that particular percentage was not greater than the death rate for that period of time there would be no decrease in numbers (curve B).

Of course a certain number of those vigorous birds destined to survive and breed would be claimed by the hunter. Under proper regulations these might be but a small percent, however, and even the killing of these might make the struggle for existence of less vigorous individuals so much less that their chances of surviving would become greater. Let the number shot bring down the numbers of birds to 75 instead of 100 at the time of minimum numbers, however, and a decrease would necessarily follow in the next year's crop of young (curve C). It seems probable, moreover, that with the hunter, just as with predaceous animals, the least vigorous prey is most easily obtained; so that no selective deterioration of the quail stock can be attributed to the hunter.

The dotted line C on the graph represents the conditions to be expected from an excessive amount of shooting. If the death rate could be lessened, the condition represented by D would exist, that is, there would be an increase in the numbers of quail. Such an increase could not exist for long, however, for the struggle for existence would also be increased to such an extent that a norm would soon be established. This same type of reasoning has been applied to nearly all forms of life and has been found to hold true.

Summing up, then, we can say that a *certain amount* of shooting might in no way effect the numbers of quail; for in the shooting we might be simply making use of numbers of quail that would have perished in some other way. It should be kept in mind, however, that there is a danger point and that when the number killed approaches near to or exceeds the normal death rate, there must follow a decrease. Another point to be remembered is that this reasoning applies to ideal conditions and does not mean that 400 out of every 500 quail can be killed each year. In shooting, many birds are killed that would have survived till the breeding season; and herein lies an error in the computation that must be taken into account. Probably the number that it would be safe to kill would be very far under the 400 mark; but even then the number might be large enough to allow considerable hunting. It is safe to say that quail can withstand a certain amount of shooting without showing a decrease in mini-

num numbers, the exact amount being dependent largely on the death rate and consequently on the locality. The great danger of exterminating the quail by hunting lies in the excessive amount of shooting which is seen in certain parts of the state brought about by the use of improved firearms and the augmented number of sportsmen.

As can be seen by studying the graph, the open season should come during the winter months,—after the young have become full grown, and at the time when the natural mortality is large. A lengthening of the season to include too many of the late winter months would result in the destruction of those birds most necessary for the retention of normal numbers. Fall shooting would allow the killing of half-grown birds. Winter shooting, *if kept within bounds*, will permit the quail not only to hold their own but to increase. The months of November and December seem best fitted for the open season. A shortening of the season to these two months would doubtless improve conditions in many localities.

The present bag limit may be too large in some parts of the state, especially in those parts where the quail are known to be on the decrease. The closing of the season for a few years, or the creation of a weekly bag limit, might be sufficient to improve the status of the quail in these particular localities. Shortening the season too much only concentrates the shooting and seldom improves conditions. The creation of a weekly bag limit, or the closing of the season for a brief period of years would effectively cut down the toll taken by the hunter. Where there is a marked depletion in numbers the closing of the open season seems the most sensible way of meeting the situation.

The suggestion that new blood is needed is hardly borne out by the facts already brought out. Our native stock is apparently in good health and only depleted in numbers.

A study of local conditions affording a knowledge of the death rate seems the most scientific way of dealing with the problem, and this method will doubtless be the method used in the future. When the amount of shooting is regulated by the natural death rate there will be no diminution in numbers of the California valley quail on account of the hunter. It should be remembered that the hunter is probably one of the most important of many factors governing numbers, and that the only way to quickly increase numbers is to cut down the toll claimed by the hunter.

SUMMARY

California valley quail have been greatly reduced in numbers in some parts of the state. In other parts these birds have increased in numbers during the last ten years, whereas in still other parts their numbers have neither decreased or increased.

Many factors govern the increase or decrease of birds, chief of which are: Food supply, cover, predatory mammals and birds, disease, and the hunter.

Food supply is probably, in the last analysis, the most important of the factors governing numbers under natural conditions, for it is a well-recognized fact that both animals and plants will increase up to the limit of their food supply.

Predatory mammals and birds act as a check on the numbers of quail and

their destruction allows of an increase, but this factor having conditioned the quail population for so long a time is of less consequence than other factors.

As there are no records of an epidemic of disease among California valley quail, there seems to be little immediate danger from this direction. "Quail disease" and "coccidiosis," well-known diseases of other members of the quail family, present a grave danger, however. A knowledge of the extent to which valley quail are immune to these diseases would throw valuable light on this subject.

The average hunter, although almost a negligible quantity twenty years ago, on account of the improved facilities for transportation and the improved firearms, has become a very important factor. A study of the laws of nature governing the numbers of quail shows that this bird might be able to withstand a small amount of destruction during the winter open season without danger of impairing the average numbers from year to year. It is when the destruction during the year nearly equals or exceeds the annual crop, thereby destroying the productive brood stock for another year, that the danger point is reached. A regulation of the amount of shooting based on the scientific determination of the normal death rate of the young and adults will eliminate all danger of the extermination of this bird by the hunter. A serious danger also, doubtless lies in the modification and destruction of the food and cover of this bird contingent upon the settlement of the country.

The present status of the California valley quail calls for conservative action governed by a knowledge of those factors causing a disturbance of the balance. In other words, strengthen those factors which cause an increase in numbers and weaken or destroy those factors which cause a decrease in numbers, and the quail will become subservient to our interests. The furnishing of plenty of food and cover, either by artificial feeding and planting, or by game preserves, the destruction of predatory mammals and birds, prevention of disease, and careful regulation of the amount of hunting to permit of the survival of a sufficient number of the productive brood stock to insure an undiminished annual crop, are factors within our control and on these depend the future of the California valley quail.

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A JOURNEY TO THE STAR LAKE COUNTRY AND OTHER NOTES FROM THE TAHOE REGION

By MILTON S. RAY

WITH THREE PHOTOS

THE spring of 1910 at Lake Tahoe was remarkable for being one of the earliest known to old settlers. At a time when usually grass in the meadows is just springing up and willows and aspens budding out, the meadow grass then (May 20) was already fast becoming dry, the willows and aspens were fully leaved, the roads were dusty and the weather sultry, giving one the impression of late June. Thus, when I encountered young-of-the-year Juncos on the day after my arrival (May 21) I was not greatly surprised; but I soon learned that the earliness of the season had not affected all species equally, and this, with the usual wide variation in Sierran nesting dates, made the effect of the early spring much less marked than it would have been otherwise.

My first day afield resulted in finding some very strange-looking eggs of the Redwing Blackbird (*Agelaius phoeniceus*, subsp?). Instead of the usual blackish scrawls about the larger ends these specimens are mottled, in some cases over the entire surface, with various shades of brown and pale purplish, which I hope to describe and illustrate more fully in some future paper. Among other finds were two nests of the Sierra Junco (*Junco hyemalis thurberi*), each with four fresh eggs. One of the nests was placed beneath a log in a

swampy meadow and was located by the bird dislodging one of the eggs in leaving, which rolled out on the meadow grass unbroken. A hard climb forty feet up an aspen showed a nest of the Cabanis Woodpecker (*Dryobates villosus hyloscopus*) to contain four very small young. This is the earliest nesting woodpecker of the region.

May 22 a tramp was taken to Cave Rock and return by the lake beach. Killdeer (*Aegialitis vociferus*) and Spotted Sandpipers (*Actitis macularius*) were common most of the way, and a nest of the former was noted, a slight hollow in the sand lined with pebbles and bits of driftwood, with four eggs well along in incubation. A nest of the Blue-fronted Jay (*Cyanocitta stelleri frontalis*) in a Jeffrey pine sixteen feet up, was found to hold three near fresh eggs, while not far distant in the cavity of an old stump 27 inches above the ground and lined with grasses, bark strips and feathers, was the large complement of eight eggs of the Mountain Bluebird (*Sialia currucoides*). Six of these appeared well incubated and two addled.

The following day was devoted to work at the Rowlands Marsh, where the customary colonies of the Redwings (*Agelaius phoeniceus*, subsp?), Brewer Blackbird (*Euphagus cyanocephalus*), Yellow-headed Blackbird (*Xanthocephalus*) and Black Tern (*Hydrochelidon nigra surinamensis*) were found nesting. The only noteworthy finds were two nests of the Canada Goose (*Branta canadensis canadensis*) described

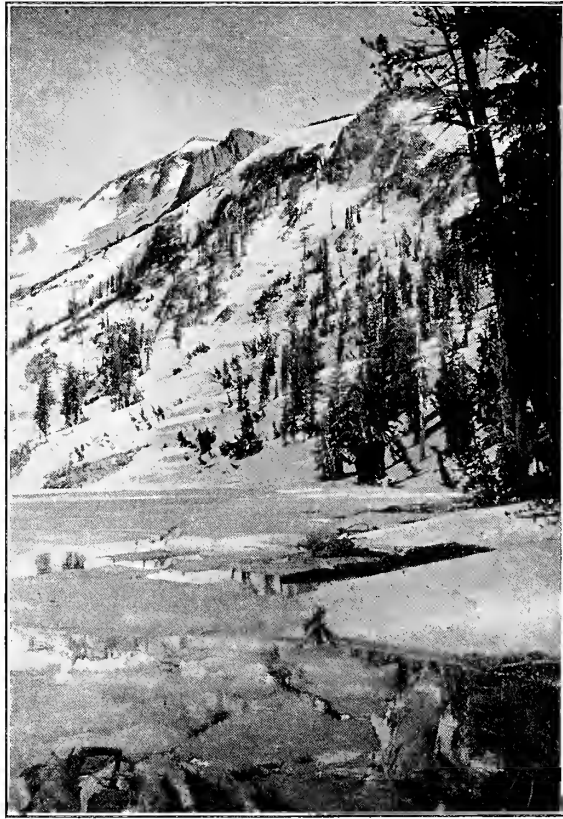


Fig. 59. STAR LAKE AT THE FOOT OF JOB'S SISTER, a nest of the Mountain Song Sparrow in late June; elevation nearly 9000 feet

Photo by Oluf J. Heinemann

in a previous CONDOR, and a nest of the Mountain Song Sparrow (*Melospiza melodia montana*) at the foot of a small willow with five young. On May 24 a fully-fledged Western Robin (*Planesticus migratorius propinquus*) was noted, which is the earliest record I have for Lake Valley. Although many bird homes were located during the next two days it was not until the 27th that I made a noteworthy find. This, a nest of the Sierra Hermit Thrush (*Hylocichla guttata sequoiensis*), was found on the floor of the valley in a lodge-pole pine sapling and made of moss, grasses and stems and lined with fine grasses. It held four eggs, slightly incubated. Another nest of more than passing interest was one of the Mountain Song Sparrow (*Melospiza melodia montana*) placed in a lodge-pole pine eleven feet up, with

three practically fresh eggs which were collected with the parent and which Joseph Grinnell pronounced typical *montana*.

On May 29 I took the first recorded eggs (a set of six) for Lake Valley of the Parkman Wren (*Troglodytes aedon parkmani*) with parent. The nest was first found on May 21 and was placed in a dead aspen 71 inches up. The cavity was extremely small and allowed very little opportunity for that extensive nest-building so dear to the heart of *parkmani*; in fact it had only a warm lining of feathers. In a hole in an adjoining aspen, twenty feet up, was a nest of the Red-shafted Flicker (*Colaptes cafer collaris*) with large young.

The Sierra Junco shows a decided preference for the margin of meadow lands and often selects situations where the nests become water-soaked and the



Fig. 60. NEST AND EGGS OF SIERRA HERMIT THRUSH IN LODGE-POLE PINE

eggs fail to incubate. One nest of this kind I found on May 30. Although the eggs were lying in water the parent remained incubating. This day proved one of continuous surprises and I felt well repaid for the long trip into new territory. The first thrills were two nests of the White-crowned Sparrow (*Zonotrichia leucophrys leucophrys*). One was placed on the ground at the foot of a small willow, along a brook. The nest was flush with the surface and made of grasses lined with red cow-hair with which the green-brown eggs prettily contrasted. The eggs were three in number and almost fresh. The flushing of the sitting bird led to the discovery of the nest.

The second nest was along the same stream four feet up in a lodge-pole

pine sapling, well concealed in a thick bunch of foliage and composed almost entirely of lodge-pole pine needles and lined with fine grasses and horsehair. This nest held four fresh eggs. Not far away the home of a Sierra Hermit Thrush was noted four feet up in a lodge-pole sapling with a set of three eggs. The nest was of rootlets, grasses and stems and lined with fine, light-colored grasses. I was interested, too, in a nest of the Western Bluebird (*Sialia mexicana occidentalis*) which is far less abundant here than *currucoides*. This nest, in a dead tree trunk eight feet up, was warmly lined with woolly substances, bark strips, grasses and stems and held five eggs in which incubation had just begun. The main feature, however, of the day's work was a dainty nest of the Ruby-crowned Kinglet (*Regulus calendula calendula*) with nine partly incubated eggs. The nest, although only nine feet up, in a small lodge-pole, was not particularly easy of access as it stood in several feet of water while a swift-running stream of icy water intervened. The pair regarded my intrusion with high disfavor, particularly the lady of the house, who scolded continually while I remained in the vicinity. Nearing Rowlands on the homeward journey a curious nesting site of the Brewer Blackbird (*Euphagus cyanocephalus*) was noted, the nest being placed on the edge of a grassy meadow beneath a board. It was less bulky than the tree-built structures and made of rootlets, grasses and stems, and lined with horse-hair.

On May 31 a nest of the Sora (*Porzana carolina*) was found at Rowlands with the large complement of 13 eggs. Many deserted nests of the Yellow-headed Blackbird with eggs were noted, the slender reeds not being sufficiently strong and bending over with the weight into the water. Many nests of the Black Tern were observed, none containing more than three eggs.

June 2 was a record day for finding nests of the Sierra Junco, two of three and two of four eggs being found. One was built in a slanting hole in the ground, arched over by pine needles, and would have defied detection had not the parent fluttered off at my approach; while another was well hidden beneath the broad leaves of a wild sunflower.

On the 3rd of June Mr. Henry W. Carriger arrived, but the only result of a strenuous half-day of joint field work was the taking of a nest of the California Yellow Warbler (*Dendroica aestiva brewsteri*) which I had located previously. This held four fresh eggs and was prettily woven to the branch of a lodge-pole pine sapling six feet up. On the following morning Mr. Carriger and I trudged some distance with a long ladder to a spot where I had observed a pair of Ruby-crowned Kinglets nest-building in one of those long, stringy, matted and twisted clumps of foliage peculiar to some lodge-pole pines. The nest was hung much like an oriole's, and after considerable manipulation we were rewarded by seeing seven eggs lying in the feathery bed of the dainty, broad-brimmed, mossy basket. Mr. Carriger found his first nest of the Wilson Phalarope (*Steganopus tricolor*) the following morning at Rowland's Marsh. The entry in his note book reads: "Four eggs; incubation one-third; nest, a small affair of marsh grass on ground in wet portion of marsh."

On June 5 Carriger and I started early on one of the most important excursions of the season, a visit to the Star Lake Country. This lake, nestling at the foot of a rugged and lofty peak called Job's Sister, has an altitude of nearly 9000 feet and the surrounding region is rich in birdlife of the Canadian and Hudsonian zones. Mr. Carriger and I confined our work principally to the broad Cold Creek Meadows which we reached about noon. En route the only

find of importance was a nest of the White-crowned Sparrow, with four eggs advanced in incubation. It was placed 28 inches up in a lodge-pole pine sapling, and made of weed stems and lined with fine grasses and horsehair.

The most important find on the meadow was a nest of the Cassin Purple Finch (*Carpodacus cassinii*) with three eggs in a state of advanced incubation. The nest was placed on almost the top branch of a pine, about thirty feet up, on the edge of the meadow. It was of particular interest as nests of *cassinii* are not often located or easy to reach, and the birds being also quick to desert and the nesting season a long one make it difficult to obtain a proper set of eggs. Although I have spent a number of summers at Lake Tahoe *cassinii*, oologically, is still unrepresented in my cabinet, and when Carriger called from the tree-top that the nest held three well-incubated eggs I felt that another Tahoean oological mile post had been passed. Carriger also examined two nests of the Audubon



Fig. 61. COLD CREEK MEADOWS IN LATE JUNE; ELEVATION 7500 FEET;
FREEL'S PEAK AND JOB'S SISTER IN BACKGROUND

Warbler (*Dendroica auduboni auduboni*), each with four fresh eggs, and two of the Sierra Junco, each with five fresh.

In a lodge-pole pine twenty feet up, placed on the end of the bough, I found another nest of the Cassin Purple Finch with four fully-fledged young. Not to mention numerous nests of the Western Robin and Western Chipping Sparrow, the only other of note I found was one of the Audubon Warbler with four fresh eggs.

On June 6 I noted two very early nests for this elevation of the House Finch (*Carpodacus mexicanus frontalis*) placed in lodge-pole pines twelve and fifteen feet up, both with five fresh eggs. Later in the day I found four eggs, incubation advanced, of the White-crowned Sparrow, and four eggs, fresh, of the Sierra Hermit Thrush. A nest of the Western Chipping Sparrow (*Spizella socialis arizonae*) was collected with a set of four eggs one of which was an infertile runt measuring only .55x.43; the others were normal averaging .71x.53.

A nest presumably of the Pintail Duck (*Dafila acuta*), which I had previously found, was also revisited as I desired to show it to Mr. Carriger. On reaching the nest, however, we found it deserted and the six eggs emptied of their contents, scattered about on the grass. Mr. Carriger located his first nest of the Ruby-crowned Kinglet today in a lodge-pole pine. Examination showed it to hold seven fresh eggs. Nearby one of the Yellow Warbler was noted placed in the dead portion of a willow without any attempt at concealment and yet for this very reason more liable perhaps to be overlooked, as nests of the Western Robin and Western Wood Pewee often are, which are built in dead or burnt trees.

Three nests of the White-crowned Sparrow, all on the ground in meadow land, were noted on June 7, one with four small young, one with one and one with four eggs, fresh. In a dead pine Carriger excavated a nest of the Pygmy Nuthatch (*Sitta pygmaea pygmaea*) with small young, while a nest each of the Williamson (*Sphyrapicus thyroideus*) and Sierra Sapsucker (*Sphyrapicus varius daggetti*) in dead portions of live lodge-pole pines were found in a like condition. We saw the first Gnatcatcher (*Poliophtila*, sp.?) for the Lake Valley region today and were much disappointed in being unable to secure it.

As we intended leaving for the long tramp to Pyramid Peak the following morning we spent June 8 leisurely rowing along the lake shore east and south-east of Bijou. Many nests of the Tree Swallow (*Iridoprocne bicolor*) were noted in cavities in piles in deep water. Most nests contained either eggs or young varying from five to seven in number. The Tree Swallows were not the only species to take advantage of the protection afforded by water-bound nesting sites, for numerous nests of the Brewer Blackbird and one of the Mountain Bluebird were also noted. The most remarkable, however, were two of the Red-shafted Flicker, both with almost full-grown young, some of which in the excitement caused by our approach fluttered into the water. For a time Carriger and I were kept busy returning them to their protected and yet perilous dwelling place. The day's work closed early as we had to spend considerable time after reaching camp preparing for the long trip to Pyramid Peak, already recounted in a previous number of THE CONDOR.

THE PRESENT STATUS OF THE COLORADO CHECK-LIST OF BIRDS

By WELLS W. COOKE

THE appearance of "A History of the Birds of Colorado," by W. L. Slater, reviewed in this number of THE CONDOR, marks an opportune time for presenting the status of the Colorado state list of birds in the light of the new records furnished by Slater and accessions that have become known since the third supplement to the Birds of Colorado was published in the *Auk* for October, 1909.

The Slater list of 1912 shows both additions and subtractions as compared with the Cooke list of 1909, as shown in the following table.

INCLUDED BY SCLATER (1912) AND
NOT BY COOKE (1909).

Pelecanus occidentalis
Coccyzus americanus
Phalaenoptilus nuttalli nitidus
Chordeiles acutipennis texensis
Empidonax griseus
Empidonax trailli alnorum
Otocoris alpestris enthymia
Agelaius phoeniceus
Loxia curvirostra minor
Astragalinus psaltria arizonae
Astragalinus psaltria mexicanus
Protonotaria citrea
Dendroica virens

INCLUDED BY COOKE (1909) AND
NOT BY SCLATER (1912).

Phalaropus fulicarius
Aegialitis meloda
Meleagris gallopavo silvestris
Phasianus torquatus
Buteo lineatus elegans
Otus asio
Sphyrapicus varius
Muscivora forficata
Otocoris alpestris praticola
Agelaius phoeniceus neutralis
Junco hyemalis montanus
Junco hyemalis oregonus
Junco hyemalis annectens
Vermivora celata lutescens
Geothlypis trichas
Planesticus migratorius

***Pelecanus occidentalis*.** First recorded for Colorado by H. G. Smith (CONDOR XII, 1910, 133) from a specimen taken at Thomasville and now in the State Museum.

***Coccyzus americanus*.** Included by Cooke in his original 'Birds of Colorado' on Bendire's record; later withdrawn by Cooke (Auk, xxvi, 1909, 412) as the evidence seemed insufficient. Now restored by Sclater based on a specimen taken by Aiken, June 4, 1898, at Ramah. This specimen has been sent to the Biological Survey and the identification confirmed by Oberholser. Sclater considers all of the yellow-billed cuckoos of Colorado east of the Rocky Mountains to belong to this form, while he is doubtful whether the western form, *occidentalis*, deserves a place in the list.

Three yellow-billed cuckoos lately sent to the Biological Survey for identification by L. J. Hersey include both forms, and queerly enough one taken in the mountains on Clear Creek, August 23, 1910, is *americanus*, while one taken on the plains at Barr, July 25, 1911, is *occidentalis*.

***Phalaenoptilus nuttalli nitidus*.** Sclater follows the A. O. U. Check-List in considering this a valid form and entitled to a place in the Colorado list. Cooke included it originally, but dropped it as being only a color phase of *nuttalli*.

***Chordeiles acutipennis texensis*.** This addition to the Colorado list was secured by Aiken, June 11, 1908, at Hoehne, near Trinidad.

***Empidonax trailli alnorum*.** Added to the Colorado list by Sclater from a specimen taken May 27, 1905, by Aiken near Limon. The identification has since been confirmed by Oberholser. Since this form breeds in British Columbia and eastern Montana it is not strange that it should pass through eastern Colorado in migration.

***Empidonax griseus*.** First recorded for Colorado by Ridgway (Birds N. and Mid. Am. iv, 1907, 571) from a specimen taken May 24, at Newcastle. Sclater adds the record of one taken by Aiken May 3, 1872, near Fountain. A specimen now in the Biological Survey was taken by Cary September 5, 1906, in the Escalante Hills of western Routt County.

***Otocoris alpestris enthymia*.** Sclater follows Oberholser in recognizing this form and considering it a winter visitant to Colorado. This form has been rejected by the A. O. U. Committee.

***Agelaius phoeniceus*.** Sclater recognizes two forms of red-winged black-

birds in Colorado, *phoeniceus* to include all the breeding birds of the State, and *fortis* to include migrants from the north that winter in Colorado. During the last few years large series of blackbirds have been collected in Colorado with a view of settling definitely the status of the several forms in the State. It may be considered as certain that the breeding bird of southwestern Colorado is *neutralis*; that the breeding bird of eastern Colorado is different from the breeding bird of the eastern Mississippi Valley and according to the present rulings of the A. O. U. Committee should bear the name of *fortis*; that most of the wintering birds of eastern Colorado are the same form as the birds breeding there, but that if the form *arctolegus* is recognized (as the present writer believes will eventually happen) it will have to be admitted to the Colorado list as a rare winter straggler.

***Loxia curvirostra minor*.** Sclater considers the great bulk of the Colorado red crossbills as belonging to this form, but assigns the breeding birds of southwestern Colorado to *stricklandi* and records a pair taken May 22, 1874, in El Paso County as the same form. The male specimen mentioned by Sclater has been sent to the Biological Survey for examination and while the dimensions are well within the limits of *stricklandi*, they are also not outside the limits of the large Rocky Mountain form that has been separated as *bendirci*, but which is considered by the A. O. U. as included under *minor*. It seems best, then, to consider the pair mentioned by Sclater as large specimens of *minor*, which is the common resident bird of that part of Colorado.

The reference of the breeding birds of southwestern Colorado to *stricklandi* seems hardly warranted. No specimens are available to settle the matter one way or the other, but the fact that the breeding birds of the mountains of northern New Mexico are not *stricklandi* is a strong argument against the probable occurrence of this form as a breeder in Colorado.

***Astragalinus psaltra arizonae*.**

***Astragalinus psaltra mexicana*.**

Both these forms are still retained by Sclater though it has been conclusively proved that they are both color phases due to age. All Colorado Arkansas goldfinches are referable to one form *psaltria*.

***Protonotaria citrea*.** Is admitted to the Colorado list by Sclater on the same evidence that was considered by Cooke as entirely unsatisfactory.

***Dendroica virens*.** Added to the Colorado list by L. J. Hersey (Auk xxviii, 1911, 490) who took a specimen at Barr near Denver, May 20, 1909.

***Phalaropus fulicarius*.** Not included by Sclater though the record has been published (Auk, xxvi, 1909, 409) and the specimen is still in the collection of the Biological Survey.

***Aegialitis meloda*.** Not included by Sclater though a specimen was taken by Dawson May 17, 1899, at Julesburg and the record published (Wilson Bulletin, vi, 1899, 50; Auk xxvi, 1909).

***Meleagris gallopavo silvestris*.** Omitted by Sclater from the Colorado list, where it has held a place since included by Say in 1823. It is true that there is not now in any collection a specimen of the eastern turkey taken in Colorado, nor has a specimen ever been identified as such by a competent ornithologist. The only claim the form has, rests on the assumption that the birds of southeastern Colorado (where the species was very common a hundred years ago) must have been the same as the birds a little to the eastward in Kansas and Oklahoma. As the species is now supposed to be extinct in that part of Colorado it is probable that the matter never can be settled.

Phasianus torquatus. Admitted by Cooke in 1898 and omitted by Sclater in 1912. Sclater's action is correct as the bird was an introduced species,—though both Cooke and Sclater admit the English Sparrow to the State list.

Buteo lineatus elegans. Omitted by Sclater since it was based on a sight identification.

Otus asio asio. Omitted by Sclater. This species was admitted to the Colorado list on the strength of the statement by Snyder that he had once captured one in the mottled phase near Greeley. As dichromatism is not known in either of the screech owls that are resident in Colorado, a bird in the red phase would seem necessarily to be referred to *asio*. The lately ascertained fact that *marxelliae* inhabits the plains to eastern Yuma County, while *aikeni* ranges east to the Kansas line (Holly, June 2, 1908), makes the probability much less that *asio* would ever occur in Colorado.

Sphyrapicus varius. Omitted by Sclater. There was a specimen in the Maxwell collection that was identified by Ridgway as the eastern form. At that time it was claimed that every specimen in the collection had been taken in Colorado, but it has since been learned that some of them were bought from outside collectors and it may well be that this particular specimen had been so obtained. All other records for the eastern form in Colorado are now known to be errors and Sclater is undoubtedly justified in dropping it from the list.

Muscivora forficata. Omitted by Sclater because it was based on a sight identification. The species is, however, so peculiar in shape and actions and was so distinctly seen by the observer that there cannot well be a mistake in the identification.

Otocoris alpestris praticola. Omitted by Sclater, though its claim to a place in the list is exactly the same as that of *enthymia* which is admitted.

Junco hyemalis oregonus. Omitted by Sclater, though the specimen was identified by Ridgway and the record has been published (Auk, xxv, 1903, 187; Auk xxvi, 1909, 417).

Junco hyemalis montanus.

Junco hyemalis annectens. Both omitted by Sclater on the ground that they are probably hybrids instead of geographical races. While the present writer frankly admits that the last word on the junco question has not yet been written and that this final judgment probably will be radically different from the treatment of the subject in the present edition of the A. O. U. *Check-List*, yet the tendency of the later discoveries in regard to breeding ranges is strongly against the theory of hybridization.

Vermivora celata lutescens. Omitted by Sclater who considers that all Colorado orange-crowned warblers should be included under the name *celata*. While probably all the breeding birds of the State are the same form, yet it would be strange if some of the more western breeding birds of *lutescens* did not pass through Colorado during migration. Indeed, specimens of such migrants have been so identified by Ridgway (Nidologist, iii, 1896, 76). In this connection it is interesting to note that if Oberholser's name *orestera* is ever adopted for the breeding birds of the Rocky Mountains, it will still be necessary to retain *celata* in the Colorado list as a rare straggler based on a specimen taken September 18, 1910, at Boulder by N. deW. Betts and identified at the Biological Survey.

Geothlypis trichas. Omitted by Sclater, and correctly, for the specimen on which Cooke's original record was based has since been examined at the Biological Survey and found to be *occidentalis*.

Planesticus migratorius. Omitted by Sclater, who considers all Colorado robins as *propinquus*. It is undoubtedly true that all the breeding robins of Colorado are this form, yet a specimen taken April 13, 1912, at Crook, Colorado, and sent to the Biological Survey, proves to be the eastern form, which, therefore, is to be retained in the State list (CONDOR, XIV, 1912, 154).

In addition to the species named above, there are several more new birds for Colorado that were not included in either list.

Anas rubripes. The black duck has had a curious history in Colorado ornithology. Originally entered in the list by Ridgway in 1874 based on a specimen taken by Aiken, its position was unquestioned until in 1900 Cooke hazarded the guess, on geographical grounds, that the Colorado birds would prove to be *Anas fulvigula maculosa*. A specimen taken November 6, 1907, near Loveland, and now in the Natural History Museum at Denver, is this form (Auk, XXVIII, 1911, 490). But, nevertheless, *Anas rubripes* must also be retained in the list, for as already recorded (Auk XXVII, 1910, 451), a black duck taken about November 13, 1904, at Loveland has been identified at the Biological Survey as *rubripes*.

Florida caerulea. One was taken September 14, 1910, by E. P. Walker at Montrose.

Ionornis martinica. One taken June 17, 1911, by W. F. Doertenbach at Florence.

Tryngites subruficollis. Taken at Barr August 25 and September 4, 1910, by L. J. Hersey (Auk, XXVIII, 1911, 490).

Calcarius lapponicus lapponicus. The original lists of Colorado birds contained this form, which was later changed to *Calcarius lapponicus alascensis*, which is the common bird of the state. It will be necessary now to restore *lapponicus* to the list, for a specimen of the eastern form was taken December 28, 1909, at Barr by L. J. Hersey, and has been identified by Oberholser (Condor, XIV, 1912, 108).

Telmatodytes palustris iliaceus. As already recorded by Betts (Auk XXVIII, 1911, 118), a specimen of this form was taken October 10, 1910, at Boulder, and one taken at Skinner's, El Paso County, January 15, 1908, is considered by Oberholser to belong to this form.

Ixoreus naevius. The same observer has recorded (Auk XXVII, 1910, 218) a specimen seen at Boulder December 5, 1909.

Hylocichla guttata sequoiensis. A lot of hermit thrushes sent by L. J. Hersey to the Biological Survey for identification contain two specimens of this form taken at Granby October 7, and at Holly May 16, 1911. It is therefore added to the Colorado list as a rare migrant, both spring and fall (Condor XIV, 1912, 108).

SUMMARY

The Sclater (1912) list of Colorado birds contains 395 species. From the list are to be withdrawn as more or less doubtful seven species—*Phalacroptilus nuttalli nitidus*, *Otocoris alpestris enthymia*, *Agelaius phoeniceus*, *Astragalinus psaltria arizonae*, *Astragalinus psaltria mexicanus*, *Loxia curvirostra stricklandi*, and *Protonotaria citrea*—leaving 388 species. To these are to be added fifteen species—*Anas rubripes*, *Florida caerulea*, *Ionornis martinica*, *Phalaropus fulicarius*, *Tryngites subruficollis*, *Aegialitis meloda*, *Otocoris alpestris praticola*, *Agelaius phoeniceus neutralis*, *Calcarius lapponicus lapponicus*, *Junco hyemalis oreganus*, *Junco hyemalis montanus*, *Telmatodytes palustris iliaceus*, *Ixoreus*

nacvius, *Hylocichla guttata sequoiensis* and *Planesticus migratorius*. This makes a Colorado list of 403 species about which there cannot be much question. There is still left a list of seven species about which opinions would differ as to whether or not they are entitled to a place in the list—*Meleagris gallopavo silvestris*, *Phalacroptilus nuttalli nitidus*, *Muscivora forficata*, *Otocoris alpestris entymia*, *Loxia curvirostra stricklandi*, *Junco hyemalis annexus*, *Protonotaria citrea*.

The breeding records of the Colorado birds have been given by Selater a much-needed revision, with the result of dropping from the list of breeders several species that had been included by Cooke in his several lists.

Lophodytes cucullatus. Omitted by Selater from the list of breeding birds, because, although seen several times in summer, there is no definite record of its nesting.

Strix occidentalis. Not considered by Selater a breeding species, although it is not known to be migratory in any part of its range.

Phloeotomus pileatus abieticola. This non-migratory bird is placed in the general list, but not in the list of breeders. The Colorado list would probably have been improved had the species been omitted altogether.

Compsothlypis americana usneae. Selater is undoubtedly justified in withdrawing this species from the Colorado breeding list, and the same remark applies to the cases of

Dendroica striata, **Dendroica townsendi**, and **Pelecanus erythrorhynchos**.

The reason for denying the latter species a place in the breeding list is not so clear as in the case of several other birds.

Marila affinis. Omitted by Selater, though it has been recorded as nesting at Barr Lake (Condor XI, 1909, 112). In a recent letter Hersey says: "On two different years I have found nest and eggs of the Lesser Scaup at Barr."

Egretta candidissima. Selater includes this in his list of breeders with a question mark, and under the heading of the distribution of the species he says that it breeds "throughout its range." The queer fact has lately come to light that many adult Snowy Herons migrate in the spring far north of the breeding range and remain there through the summer as non-breeders. The habit of northward migration in the fall is common among herons, but the Snowy Heron is unique among North American birds in its northward migration in spring of non-breeders. The Snowy Heron does not breed nearer to Colorado than Louisiana.

Grus mexicana. Omitted by Selater from his list of breeding birds, but a late record of nesting is mentioned in the body of the work.

Pedioecetes phasianellus columbianus. Selater includes *campestris* in the list of breeders, but not *columbianus*, and seems rather doubtful about the latter occurring in the state. The facts are that all sharp-tailed grouse now in Colorado are almost typical *columbianus* and that the form different from *columbianus*, which used to occur in great numbers in northeastern Colorado, is now extinct in the state.

Astur atricapillus striatulus. Selater gives *Astur atricapillus* as a "rather uncommon winter bird in Colorado," and says that it breeds "south perhaps to Idaho." While it is true that there is no specific record of a nest of a goshawk found in Colorado, yet the bird has been noted in summer in the state by several competent observers—among which records may be mentioned Lone Cone, near Coventry, July 27, 1907 (C. H. Smith); not rare July 6-17, 1905, in Middle Park

at Coulter and Hot Springs (Cary)—and in the Zuni Mountains, New Mexico. It has also been taken in summer in the San Francisco Mountains, Arizona, and a specimen now in the collection of the Biological Survey was taken at Tres Piedras, New Mexico, July 13, 1892, and undoubtedly represents a bird that had nested in the vicinity. But all of these breeding birds, from Idaho to Arizona and New Mexico, should be referred to the western form *striatulus*, and *atricapillus* should therefore be dropped from the list of Colorado breeders and its place taken by *striatulus*. The former remains, however, as a winter visitant to Colorado.

Asio flammeus. Selater withdraws this species from the breeding list, but it should be retained; for a pair seen by A. K. Fisher at Sterling July 27, 1892, must be considered as breeding birds.

Strix varia. Not given by Selater in his list of breeders, but if the species is to be admitted at all in the Colorado list it must be as a breeder, since eggs were secured at the same time with the original specimen.

Dryobates villosus villosus. Selater does not include this form in the list of breeders; but the specimens on which the form was introduced into Colorado were nesting when taken. This is also the breeding form of the Arkansas Valley as far west at least as Lamar, where a specimen was taken by H. G. Smith June 20, 1904.

Passerella iliaca schistacea. Not included in Selater as a breeder because no nest has been found in Colorado; but as almost all the records for the state are in June and July, it seems almost straining a point to exclude it from the breeding list.

Pipilo aberti. Excluded by Selater. Its claim to a place in the Colorado list rests on a nest and eggs. It would be better to drop the species entirely from the list.

Nannus hiemalis. Excluded by Selater, because there is no specific record of the finding of a nest. There seems to be reason for doubting that the July birds, seen by Gillette and Cooke, were nesting.

Toxostoma bendirei. Should be withdrawn from the list of breeders, for the breeding records of Christie are undoubtedly erroneous.

FROM FIELD AND STUDY

Position of Mourning Dove Nestlings.—In an article by F. C. Willard entitled "A Week Afield in Southern Arizona," which appeared in *THE CONDOR* for March-April, 1912, there occurs this statement: "The young Mourning Doves always face in the same direction." This may be true of this species in Arizona, but it does not hold good in Iowa, as a few notes made in 1907 will show.

The first mention of positions in nest, bearing date of June 18, refers to doves in a nest situated in an evergreen tree about three feet from the ground, favorably located for making drawings and photographs, and was visited for these purposes when the nestlings were about twelve days old, the boy who found the nest, showing the way. When we found them, one young dove faced north, the other south. "When I returned to photograph them both faced south."

Three other notes relate to nestlings in our yard that were visited daily. The older of these Mourning Doves was hatched June 17. The first note on this question bears date of June 23: "The parent bird sat with its tail north-by-west, and I expected to find the young facing southeast; but one was in that direction and the other in the opposite direction. It is the first time both of their heads were not together." Again, on June 24: "One youngster faced one way and the other in the opposite direction." A note on July 5 mentions that they faced the same way. These are all the notes that were made on this subject; but an impression remains that after June 24 they were more frequently found facing opposite directions.—ALTHEA R. SHERMAN.

Two New Arizona Records.—During my visit to Tucson, Arizona, in February and March of the present year, I had the pleasure of examining the collection of game birds gathered and mounted by Mrs. James Wheeler of that city. Among these were a pair of adult Little Brown Cranes (*Grus canadensis*), which gave the following measurements, as closely as could be ascertained: Length 35 in., bill 3.50, wing, 19.00. The small size of these birds was especially noticeable to one who had seen the larger cranes of the San Joaquin Valley, California.

In addition to these, Mrs. Wheeler had beautifully mounted a pair of American Golden-eyes (*Clangula clangula americana*), taken at Tucson; the male, a single bird, taken April 1, and the female taken about February 1, in company with pintails.

So far as I know these are two species not hitherto recorded from Arizona.—Jos. L. SLOANAKER.

A Bird New to Colorado.—I wish to record one more bird new to Colorado. This is the Eastern Robin (*Planesticus migratorius migratorius*). A bird taken near Crook, April 13, 1912, was so identified by H. C. Oberholser of the Biological Survey, and is now in the Colorado Museum of Natural History. Our common form is the Western Robin (*Planesticus migratorius propinquus*).—L. J. HERSEY.

February Bird Notes from Palm Springs.—In THE CONDOR for March, 1904 (pp. 40-45), appeared an article listing the birds found by Joseph Mailliard and myself in the vicinity of Palm Springs in midwinter—December 25, 1903, to January 2, 1904, inclusive. The article referred to describes the location and general features of this attractive winter resort. In brief, the small village called Palm Springs lies on the floor of the extreme western arm of the Colorado desert, in Riverside County, California. Although but 450 feet in elevation it is close against the east base of San Jacinto Peak which rises to an altitude of 10,800 feet within a horizontal distance of less than eight miles.

In February, 1912, I visited Palm Springs from the 9th to the 13th of that month for the purpose of gathering for the California Museum of Vertebrate Zoology a series of the gopher (*Thomomys perpallidus*) described from there in 1886, when the place was called Agua Caliente. Although my time was pretty fully occupied with the traps and at the skinning table, some bird notes were acquired, part of which, upon comparison with the 1903 observations, show themselves worth recording.

Prairie Falcon (*Falco mexicanus*). On February 9, as the train pulled in at Palm Springs Station, one flew from its perch at the top of a telegraph pole close by. An hour or so later one was seen in flight over the desert only a mile or two out from the village.

Screech Owl (*Otus asio* subsp.). Each evening the mellow notes of this owl were heard in the cottonwoods and pepper trees close about the houses of Palm Springs. The subspecies represented is wholly conjectural. Zonally and faunally both, the form *O. a. gilmani*, of the Colorado Valley, should be expected. But it is possible that the bird or birds heard were temporary visitants from the wooded mountain slopes a few miles distant and possessing San Diegan district representatives. In this case the screech owl would have been *O. a. bendirei*.

Costa Hummingbird (*Calypte costae*). Two adult males were seen on the 11th and two on the 13th, along the Tahquitz ditch where they were foraging among blossoming shrubs. This observation, together with that of the midwinter visit of 1903-04 convinces me that this hummingbird does winter regularly within the state, though in relatively small numbers. It is said that the sheltered arm of the desert in which Palm Springs is located, is the warmest place in California during the winter season. If this is true, others of our summer visitant category of birds may be expected to tarry through the winter there.

Western Raven (*Corvus corax sinuatus*). Seen in flight daily along the mountain sides back of town. Common on the desert along the railroad a few miles north.

Willow Goldfinch (*Astragalinus tristis salicamans*). A small company seen February 11 in the upper branches of a cottonwood. This goldfinch is rarely reported from the desert, even as a winter visitant.

Abert Towhee (*Pipilo aberti*). Abundant throughout the town and along the base of the hills skirted by the Tahquitz ditch. Far more numerous than in December, 1903.

Townsend Solitaire (*Myadestes townsendi*). At least two of these birds were constantly present in the pepper trees in front of the Desert Inn. Their flute-like call-notes were often heard, and one bird was seen to launch into a moderate song flight, the usually ecstatic and prolonged song being given in a rather subdued and abbreviated version. The nearest breeding locality of the Solitaire is the upper Transition zone of the San Bernardino Mountains.—J. GRINNELL.

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EDITORIAL NOTES AND NEWS

Ornithologists have always found difficulty in satisfactorily expressing the varying degrees of abundance of the species in a region. In spite of efforts to attain to an accurate diagnosis through statistical methods, no practically workable scheme is forthcoming. We still rely on various words, of very indefinite meaning to be sure, but which give to the mind some notion of numbers of individuals as compared with what they might be under ideal circumstances.

In *Science* for June 14, 1912, page 930, Mr. John Dryden Kuser calls attention to the multiplicity of words used, and misused, to designate relative abundance. He chooses a scale of eight members, as providing to his mind a workable nomenclature of occurrence. These are: abundant, common, frequent, uncommon, occasional, rare, scarce and irregular.

To our minds just four terms come nearer the ticket: abundant, common, fairly common, and rare. "Fairly common" equals Kuser's "frequent", the latter being objectionable because of equivocal meaning. Any closer definition, short of actual censuses, seems to us futile. Of course other qualifying terms may be employed to advantage. A winter visitant may be common, and either regularly or irregularly so. Another species may be rare but regular in its appearance, or it may be rare and casual (that is, "accidental", though we dislike the latter term). Uncommon, occasional, rare, and scarce, are too nearly synonymous to be serviceable all at the same time; "rare" is sufficient.

In this connection we wish to point out the flagrant misuse of the word "resident" in many lists and even authoritative text-books, where birds are described as being "summer residents" or "winter residents". Explicitly, *resident* means inhabiting a region continually, that is, throughout the year. Birds are either resident or non-resident (migrant): if of the latter class, they are either summer visitants, winter visitants or transients. A "visitant" may remain a few days in midwinter only, or it may be with us six months including the breeding season. A transient is, as a rule, a species which summers wholly north of the particular locality concerned and winters south of it; so that it occurs only during the period of migration.

The four seasonal categories of birds may therefore be correctly alluded to as resident, summer visitant, winter visitant, and transient. Relative numbers of individuals involved may be denoted by the terms abundant, common, fairly common, and rare.

Should the above suggestions have aroused difference of opinion on the part of any of our readers, we would be glad to publish open letters upon the subject.—J. G.

Mr. George Willett is spending the months of July and August in the vicinity of Sitka, Alaska, where he is making a study of the bird-life on the St. Lazaria Bird Reservation. This work is being carried on under the direction of Dr. T. S. Palmer and in the interests of the National Association of Audubon Societies.

Mr. Alexander Wetmore is stationed for the year in Porto Rico, where he is conducting investigations into the economic relations of the native birds under the auspices of the Bureau of Biological Survey. Mr. Wetmore reports a successful time so far. Porto Rican birds are relatively few in species, but many individually, and are thus important to local interests.

Pacific Coast Avifauna numbers 7 and 8 will be mailed free to Cooper Club members about August first. Number 7 is Willett's *Birds of the Pacific Slope of Southern California*; number 8 is *A Systematic List of the Birds of California* by J. Grinnell.

The Editors beg to remind Cooper Club members that short "Field and Study" notes are of usually greater interest to the average reader of *THE CONDOR*, than the longer and more formal general articles. The season's experiences should have provided each one of us with information worth contributing in this way.

PUBLICATIONS REVIEWED

A HISTORY OF THE BIRDS OF COLORADO | By WILLIAM LUTLEY SCLATER | M. A. [etc. two lines]. | With seventeen Plates and a Map | Witherby & Co. | 326 High Holborn London | 1912 | 8vo, pp. i-xxiv. 1-576 (Cloth, \$5.00 net).

This, the latest addition to the State bird lists, is a thick octavo of nearly six hundred pages and with so much of it in fine print as to represent a very large amount of material. The book is dedicated to Gen. W. J. Palmer and the statement is made in the introduction that it was in accordance with his desire that the work was undertaken, and that the expenses of publication "have been defrayed by his sister-in-law, Mrs. William Lutley Selater, and his brother-in-law, Mr. Chase Mellen, of New York." A photograph of Gen. Palmer faces the title page.

The birds of the State, 392 [=really 395] in number, are divided into several categories: breeders 225, winter residents 28, migrants 33, and casual 106. There is an elaborate system of keys to families, genera and species constructed for the most part on the best modern lines, though occasionally they fail to be dichotomous. Under each species there is given first its printed records in Colorado and the reference to each, these references by the help of the bibliography being reduced to least possible compass. Next follows a rather full but very concise description of the adult male plumage, with a statement of the difference shown by the female and young. A paragraph gives the general distribution of the species, which is followed by a full statement of its range in Colorado, with the authority for each record. Under the heading of habits are given facts concerning the food, nesting, and various other interesting items.

As remarked in the introduction, the present volume is "founded on the very complete collection of Colorado birds formed during the last thirty-five years by Mr. Charles E. Aiken, of Colorado Springs." Mr. Aiken's collection is one of the largest ever brought together in the State and the most valuable part of the book consists in the numerous records from this collection now for the first time made public. The collection furnishes two new birds for Colorado—*Chordeiles acutipennis texensis*, taken by Mr. Aiken near Trinidad, and *Empidonax traillii aluorum*, taken by him near Limon—and restores one form—*Coccyzus americanus*—that was at one time admitted to the State list but had been dropped for lack of positive proof of its occurrence.

The seventeen reproductions of excellent photographs by Rockwell, Warren and Nash are printed on a high-grade paper that presents them to good advantage.

The volume contains an elaborate bibliography comprising "a list of all the titles up to December, 1910, containing anything of importance for the study of Colorado or-

nithology." The list numbers 294 titles. The four publications of Cooke on Colorado birds had listed 343 titles in his bibliographies. Selater omits 75 of these in his bibliography and adds 17 published previous to 1909 and 9 titles that appeared in 1910, making the 294 titles. Including the 91 less important titles, Cooke's bibliographies totaled 434 titles, to which he can now add 93 more, making a total of 527 titles in his Colorado bibliography.

A useful feature of the volume is a "Gazetteer" of the several hundred localities mentioned in the work. The volume closes with an unusually full and satisfactory index.

Mr. Selater has made good use of his opportunities and has produced a thoroughly good book. It is up to date in its nomenclature and faultless in its typography. It easily takes rank among the very best of the State bird lists.—W. W. C.

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

APRIL.—The April meeting of the Southern Division of the Cooper Ornithological Club was held on Thursday evening, April 25, 1912, in the office of H. J. Lelande, 246 Wilcox building, Los Angeles, with President Morcom in the chair and the following members present: Blaine, Chambers, Daggett, Gray, Howell, Howard, Hubbs, Antonin and Alphonse Jay, Judson, Lamb, Miller, Owen, Rich, Robertson, Wood.

The President appointed Mr. Daggett as Secretary.

The minutes of the Southern Division for March were read and approved. A newspaper clipping of an article by Mr. J. Buckland, of the Royal Colonial Institute, England, was read. This dealt with the terrible inroads on bird life due to the demands of fashion for plumage.

On motion of Robertson, seconded by Miller, and duly carried, the Secretary was instructed to cast the ballot electing to active membership Mr. James Buckland, proposed at the last meeting.

Applications for membership were presented as follows: Lansing K. Tevis, Bakersfield, Calif., proposed by J. S. Douglas; Kate W. McGraw, 2301 Hearst avenue, Berkeley, and Asa C. Chandler, Maplewood, N. J., both proposed by H. C. Bryant; George Wood, Hollywood, Calif., proposed by J. E. Law; C. W. Chamberlain, Lancaster, Mass., proposed by A. B. Howell.

On motion carried the resignation of Willis H. Jackson was duly accepted. Adjourned.—F. S. DAGGETT, *Sec'y pro tem*.

For Sale, Exchange and Want Column.—In this space members of the Cooper Club are allowed one notice of about 35 words in each issue free of charge. Books and magazines can be offered for sale or exchange; bird skins and eggs can be offered in exchange, but *not for sale*. Notices must be written plainly, on one side only of a clean sheet of paper. For this department address W. LEE CHAMBERS, *Eagle Rock, Los Angeles Co., Cal.*

WANTED—The Condor, vols. V to XII, inclusive. JOHN C. PHILLIPS, *Wenham, Mass.*

THE GREAT AUK—A Record of Sales of Birds and Eggs by Public Auction in Great Britain, 1806-1910, by Thos. Parkin; 36 pages and 5 plates. A postal money order for two shillings sent direct to MR. THOMAS PARKIN, *High Wickham, Hastings, England*, will bring a copy by return mail.

WANTED FOR CASH—BIRD LORE, a complete set; also vols. 1, 2, 3, 7, 10, complete or any odd numbers of these vols. THE AUK, vols. 1 to 10 inclusive; also any magazines or books on ornithology. J. N. SWIFT, *Stockport, W.*

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FOR SALE—Various odd numbers of ornithological magazines and other publications, including the following: O and O, vol. VI, nos. 2-10; vol. VII; vol. VIII, nos. 2-7. The Observer, vol. III, nos. 1, 5, 9; vol. V; vol. VI, nos. 1-11; vol. VIII, nos. 2-10. R. W. SHUFFELDT, *3356 18th Street, Washington, D. C.*

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Bulletin, no. 8; The Iowa Ornithologist, vols. 2, 3 & 4; The Western Ornithologist, all nos. issued after no. 1 of vol. 5; The Petrel, all nos. issued after no. 1 of vol. 1; The Atlantic Slope Naturalist, all nos. issued except nos. 2, 3, 5 of vol. 1; also all numbers issued of the following: The Ornithologist and Botanist; The Oologist's Exchange; The Wolverine Naturalist; The Oologist's Advertiser; The Owl; Stormy Petrel; Cameland; The Museum; Curlew; The Hummer; The Egg Collector; The Bittern; Ohio Naturalist; Cassinia, and many others too numerous to mention, so write me what you have. I have complete vols. of Oologist and Bird-Lore for exchange. GEORGE SETH GUION, *Napoleonville, La.*

WANTED—Correspondence with all persons who have done any kind of ornithological work in Wyoming. Send me names and addresses of yourselves and friends. ERNEST PILLSBURY WALKER, *Dept. of Biology, Univ. of Wyom., Laramie, Wyom.*

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Vol. I,	1899, Bulletin of the Cooper Orn. Club (out of print)		No. 1—"Birds of the Kotzebue Sound Region, Alaska," by Joseph Grinnell; 80 pp. and map; Nov. 1900	\$.75
Vol. II,	1900, The Condor	\$5.00	No. II—"Land Birds of Santa Cruz County, California," by R. C. McGregor; 22 pp.; May, 1901	.25
Vol. III,	1901, " "	5.00	No. III—"Check List of California Birds," by Joseph Grinnell; 100 pp. and 2 maps; June, 1902	1.50
Vol. IV,	1902, " "	3.00	No. IV—"Birds of the Huachuca Mts., Arizona," by Harry S. Swarth; 75 pp.; April 15, 1904	.50
Vol. V,	1903, " "	2.00	No. V—"A Bibliography of California Ornithology," by Joseph Grinnell; 166 pp.; May 15, 1909	1.50
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W. LEE CHAMBERS, Bus. Mgr. "The Condor."

Eagle Rock, Los Angeles Co., California.

THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XIV

September-October, 1912

Number 5

THE DISCOVERY OF THE NEST AND EGGS OF THE CALIFORNIA PINE GROSBEAK

By MILTON S. RAY

WITH SEVENTEEN PHOTOS BY OLUF J. HEINEMANN AND THE AUTHOR

WITH the taking of the eggs of the Gray-crowned Rosy Finch at Pyramid Peak in June of 1910, there remained only three or four birds, known to breed in California, whose nests and eggs were yet undiscovered. One of these remaining few was the California Pine Grosbeak (*Pinicola californica*).

In recording the discovery of the nest and eggs of this bird it is a fitting time, I think, to review the published literature referring to this species, at once one of the rarest, and most interesting forms of birdlife to be found in the great Sierran woodland. It happens, however, that there is but little literature for reference; in fact, many workers in the bird's range have failed to record its presence at all and few have found it in any abundance. Although the majority of these workers were in the field during the summer months, the home life of the California Pine Grosbeak has remained unknown. The table on the next page gives the published records of the bird's occurrence.

Belding (1890) writes as follows: "Summit, Central Pacific Railroad, August 11, 1882, tolerably common; from June 23 to July 10, 1885, an adult male and female feeding in alders; during this time these only; but later, in August and September, not rare, in fact rather common. Blood's [Calaveras County] July 16, 1880, shot an adult female which probably had a nest; specimen sent to Smithsonian Institution."

Dr. A. K. Fisher, in his report on the birds of the Death Valley Expedition (1893), says of this species: "Mr. Nelson saw a fine adult male pine grosbeak in brilliant plumage on the head of the San Joaquin River, July 30 [1891]. This individual was the only one seen during the year."

W. W. Price, who was first to separate this bird from the eastern form,

TABLE SHOWING RECORDED OCCURRENCES OF THE CALIFORNIA PINE GROSBEEK

RECORDED BY	YEAR	LOCALITY AND REMARKS	PUBLICATION
James G. Cooper	1868	Johnson's Pass, Sierra Nevada, Sept. *	Proc. Calif. Acad. Sci., IV, p. 8
" "	1870	Resident on high Sierra Nev.	Orn. Calif., I, p. 151
Baird, Brewer and Ridgway	1874	Summit Central Pac. R. R. Pass, 7000 ft.	Hist. N. Am. Birds, I, p. 453
Robert Ridgway	1878	Soda Springs, Placer Co.	Bull. Nutt. Orn. Club, III, p. 66
Lyman Belding	1879	Soda Springs, Sept.	Proc. U. S. Nat. Mus., I, p. 412
" "	1890	Blood's, Calaveras Co., July 16, 1880	Land Birds Pac. Dist., p. 131
" "	"	Summit, C. P. R. R., Placer Co. August 11, 1882, and between June 23 and Sept., 1885	" " " " "
A. K. Fisher	1893	Head San Joaquin River, July 30, 1891	N. Am. Fauna, no. 7, p. 79
William W. Price	1897	Pyramid Peak, August 5, 1892	Auk, XIV, p. 184
" "	"	Silver Lake, Amador Co., June 27, 1895	" " p. 185
" "	"	Pyramid Peak, July and August, 1895 and 1896	" " "
Chester Barlow	1900	Forni Meadow, El Dorado Co., June 9, 1900	Condor, II, p. 107
Milton S. Ray	1910	Pyramid Peak Plateau, El Dorado Co., June 9, 1910	Condor, XII, p. 149
" "	1910	Pyramid Peak, June 10, 1910, altitude 9000 ft.	" " "
" "	1912	Lake of the Woods, El Dorado Co., July 1, 1909	Condor XIV, p. 13

* Two skins taken by J. G. Cooper are now in the California Museum of Vertebrate Zoology. These bear data in Cooper's handwriting as follows. Mus. no. 4134: "Pinicola | Summit Johnson's Pass | Sept. 22-63 J. G. C." (The other side of the label gives measurements; the bird is evidently an immature male, though the sex mark is omitted.) Mus. no. 4135: "Pinicola Canadensis ♂ | Summit, Placer Co., Cal. | July 26th, '70 J. G. C." (The other side of the label gives measurements and color of iris, bill and feet.)

writes as follows (1897): "This apparently very distinct *Pinicola* is an inhabitant of the higher Sierra Nevada Mountains of Central California. It is strictly an alpine species; I have never seen it below 7000 feet and I have taken it near the timber-line. It is peculiar to the belt of tamarack pine (*Pinus murrayana*), and the beautiful red alpine fir (*Abies magnifica*), and most of the specimens taken were in groves of this latter tree. According to my observations this bird is uncommon, for, during several vacations spent in the higher Sierra, I have met with it only on rare occasions. The first time I saw this Grosbeak was on the evening of August 5, 1892, near Pyramid Peak. I was returning to my camp along the margin of a shallow alpine lake, bordered by a dense growth of *Abies magnifica*, when a grayish bird flew fearlessly to the edge of the water within a few feet of me. The color was so very similar to that of Townsend's Solitaire, *Myadestes townsendii*, I might in the twilight have passed it for that species had I not caught a glimpse of its large and heavy bill. I secured it, and to my surprise found it an adult female *Pinicola*, the first I had ever seen from California. I saw no more that summer though I spent over a month in the higher altitudes.

"The next time I observed the species was in 1895. I obtained, June 27, a fine male near Silver Lake in Amador Co. (about 20 miles due south of Pyramid Peak), and saw on the same date a female which was evidently its mate. No

more were seen in that locality, but in July of the same summer I saw two or three individuals in fir woods on Pyramid Peak, but secured none.

"Last summer, 1896, I again visited Pyramid Peak, and was fortunate in getting a fine series of *Pinicola*, 20 specimens in all, and of which all but 4 were available for examination in making the present report. I was assisted in my field work by Mr. C. S. Dole and Mr. P. O. Simons, and to their efforts is greatly due the large and interesting series.

"The greater number of adults were taken on the edges of Alpine pastures where salt is placed on fallen logs for stock. The Pine Grosbeak visits these 'salt licks' in company with Cassin's Purple Finch and the Western Evening Grosbeak, and was at all times exceedingly fearless and unsuspicious. The males have a



Fig. 62. UPPER PORTION OF THE FORNI MEADOW, LOOKING NORTH; THE FORNI CABINS CAN BE SEEN AT THE EXTREME UPPER END TOWARDS THE BASE OF PYRAMID PEAK; PHOTOGRAPHED ON OUR FIRST VISIT JULY 7, 1902, ON WHICH DATE THE SNOW HAD ALMOST ENTIRELY DISAPPEARED

very pleasing song, and hearing it upon one occasion, I thought it resembled the song of *Carpodacus cassinii*. Their call note is not loud and grating like the note of the Evening Grosbeak.

"They breed late, as attested by two nestlings brought to me July 29, by a camper, who found them on the lower branches of a fir in a wild glen at the western base of Pyramid Peak, at about 9000 feet elevation. He did not see any nest, nor did the parent birds put in an appearance. The same day Mr. Dole and Mr. Simons each obtained a young specimen, perhaps five days older. They could fly quite easily. On August 3, while collecting in a forest of fir east of Pyramid Peak, Mr. Dole obtained two additional young, which were

nearly full grown. The female parent which was feeding them was also secured.

"The crop and stomach of an adult contained the soft leaf ends of *Pinus murrayana* and *Abies magnifica*, besides seeds and portions of various insects.

"Unlike the Pine Grosbeak living in the far north, these birds probably find it unnecessary to migrate any great distance in winter. If the weather is too severe on the alpine summits, they can in a moment drop down into the deep cañons which furrow the western flank of the Sierra, and find a temperate climate and abundance of food."

In a recent letter (August 2, 1912), Mr. Price advises that with the exception of the fact that he has observed the bird in the summer time of various years since, he has no further notes than those already published. By reference it will be seen that Price does not include this species in his account of "Some Winter Birds of the High Sierras" (Condor, VI, p. 70), and in answer to my question he states that he has no winter record of the bird at all. Mr. Joseph Grinnell



Fig. 63. UPPER PORTION OF THE FORNI MEADOW, LOOKING SOUTH; PHOTO TAKEN JUNE 11, 1911; COMPARE WITH FIG. 62

informs me that as ornithologists living in the Sierran foothills have never recorded the bird as a winter migrant or winter visitant and that as he found the Alaskan bird, *P. c. alascensis*, resident in the Kowak Valley, it can be quite safely assumed, by inference, that the Californian bird is likewise permanently resident in the Boreal zone of the Sierras.

Price described the California Pine Grosbeak as a *subspecies* somewhat in opposition to the canons of the American Ornithologists union; for he says "I have seen no examples of intergradation. However, these may be expected from the higher mountains northward." Mr. Joseph Grinnell informs me that no birds have ever been recorded north of Placer County, except those of another form near Mount Baker, Washington, and in British Columbia. On account of there being no examples of intergradation (due to the bird's isolated habitat) and to sharply defined differences existing in shape of bill between this and

other birds of the genus, the California Pine Grosbeak should stand as *Pinicola californica*, a distinct species.

Chester Barlow (Condor, II, pp. 107, 109, and III, p. 169) tells of the Pine Grosbeak as follows: On June 9, 1900, "while we were passing through a decided bog, we met our first California Pine Grosbeak quietly feeding beside an old log." The bird, a male in brilliant red plumage, was very tame and was probably nesting in the vicinity. "At this place the red firs hold numerous accumulations of needles about the size of a nest, which would render the location of a nest difficult excepting by watching the bird." "We saw others of this species, which seems to be a fairly sociable bird, two males coming to a tamarack within a few feet of our camp." It is "seemingly a species of irregular distribution, not occurring below 6,000 or 7,000 feet." "The only note so far as observed consisted of a harsh call note very similar to that of the Louisiana Tanager."

Dr. Sterling Bunnell, who has traveled along the Sierran crest from Mt.



Fig. 64. OUR 1911 PARTY AT FORNI'S, TAKEN JUNE 11; LEFT TO RIGHT, CARRIGER, RAY, LITTLEJOHN; THE ROOF OF ONE OF THE CABINS DEMOLISHED BY WINTER SNOWS CAN BE SEEN IN THE BACKGROUND

Whitney to Shasta, says in a letter under date of July 8, 1912, that notwithstanding the extensive territory he covered, his notes on the occurrence of this bird are so few they would scarcely be worthy of publication.

During the past summer I had the pleasure of being some days afield with Messrs. Forrest Hanford and Loren E. Taylor, both of whom are veteran observers in the Sierras, and I am indebted to Mr. Hanford for the following notes. "After spending a number of summers in the Sierras, in the vicinity of Pyramid Peak and Lake Tahoe, I find my notes on the Pine Grosbeak somewhat limited; in fact, my records of not observing the Grosbeak are many more than the few individuals noted, and perhaps the only value of the few notes I have been able to gather would be to show its scarcity in its summer breeding ground and in country seemingly well adapted in altitude and food supply for this species.

"In July, 1902, Mr. L. E. Taylor and I made a trip through the Silver Creek

region, about three miles west of Pyramid Peak. Our way led mostly through forests of red fir and tamarack pine; at Blakeley's three Pine Grosbeaks were observed feeding along the west bank of Silver Fork. The next day, some miles north of Wright's Lake, two Grosbeaks were seen quietly feeding among red firs bordering our road.

"On June 6, 1904, Peavine Ridge was crossed to Silver Creek, over snow in many places. At Blakeley's, near Wright's Lake, snow was banked up to the window sills. Seven or eight days were taken up in ranging through the country, but no Grosbeaks were observed.

"This year, 1912, Taylor and I camped for some days at Star Lake, and a little later, in the beginning of July, two weeks were spent at Lake-of-the-Woods, near Pyramid Peak. On our return journey we crossed Devil's Basin into Rock-bound Valley and through Emerald Bay Gorge to Lake Tahoe, and though we traveled through miles of forest almost every day of our outing no Pine Grosbeaks were seen."

The following table shows our previous fieldwork in Pine Grosbeak territory, all of which, with the exception of "Spoooner-Marlette Lake", lies within Californian territory. The record of July, 1902, I have questioned as I did not see the bird at close range. As we work some distance apart, where there were more than one afield, joint mileage is given.

TABLE SHOWING OUR PREVIOUS FIELDWORK IN THE RANGE OF CALIFORNIA PINE GROSBK

FIELD WORKERS	DATE	VICINITY	ELEVATION	MILES C'Y'R'D	BIRDS SEEN
Ray	June 4, 1901	Phillips' Station	6500 to 7600	5	0
"	June 16, 1902	" "	" " "	5	0
"	June 21, 1902	Star Lake	7500 to 9000	8	0
"	July 1, 1902	Grass Lake	6500 to 7300	3	0
"	July 3, 1902	Phillips' Station	6500 to 7600	5	0
"	July 4-7, 1902	Pyramid Peak Region	7000 to 9000	25	1 (?)
"	June 10, 1903	" " "	7000	4	0
"	June 11-12, 1903	Phillips' Station	6500 to 7600	15	0
"	June 26-27, 1903	Star Lake	7500 to 9000	12	0
"	August 12, 1906	Phillips' Station	6500 to 7600	5	0
"	August 24-25, 1906	Star Lake	7500 to 9000	12	0
"	September 6, 1906	Phillips' Station	6500 to 7600	5	0
"	June 3, 1909	Cold Creek Meadows	7500	4	0
"	June 11-13, 1909	Deerington's	6700 to 7600	11	0
"	June 22-24, 1909	Spoooner-Marlette Lake	7000 to 8000	14	0
"	June 28-July 1, 1909	Star Lake-Lake of the Woods	6500 to 8500	29	2
" and Carriger	June 5, 1910	Cold Creek Meadows	7500 to 8500	16	0
" " "	June 9-13, 1910	Pyramid Peak Region	6500 to 9000	90	10
"	June 19-24, 1910	" " "	" " "	34	5
"	June 28, 1910	Cold Creek Meadows	7500	5	0
" and Carriger and Littlejohn	June 10-14, 1911	Pyramid Peak Region	6500 to 9000	117	2
"	June 24, 1911	Cold Creek Meadows	7500	5	2
<i>Total Days 40</i>				<i>Total Miles 129</i>	<i>Total Birds 22</i>

My own first field work in the haunts of the Pine Grosbeak was about Phillips' Station on the summit of the Lake Tahoe stage road, June 4, 1901. The work here, like that on June 16 of the following year, was done while en route to Lake Tahoe and was not extensive. No Pine Grosbeaks were observed on either trip. During 1902 I visited Star Lake on June 21, Grass Lake July 1 and Phillips' Station for the second time on July 3, but failed to find any of the birds.

From July 4 to 7 was passed at various points in the very heart of the home country of *Pinicola*, Wright's Lake, Forni's and Pyramid Peak; but only on one occasion was a bird seen referable to this species. On July 6 while edging around a snow-fringed lake at 9000 feet altitude, on the southwest slope of Pyramid Peak, I saw a bird fly from a tall hemlock that appeared to be a Pine Grosbeak; the distance, however, prevented me from being absolutely positive of its identity.

On June 10 of the following year (1903) we attempted to reach this region but failed. A record of this trip (*Auk*, xxii, p. 364) in part reads as follows: "June 10. Our experience today will be long remembered. Thinking that even



Fig. 65. A GREAT SNOW-DRIFT OF 1911, THE YEAR OF "MORE SNOW THAN THE WHITE MAN EVER BEFORE SAW"; CARRIGER AND LITTLEJOHN CAN BE DISCERNED IN THE TOP CENTER OF THE PICTURE; ELEVATION AT TOP OF DRIFT 8500 FEET, THUS BELOW TIMBER-LINE;
PHOTO TAKEN JUNE 12, 1911

if snow should cover the road, we could reach Forni's, at the base of Pyramid Peak, we left the main highway at Georgetown Junction at noon and began the ascent by a steep road used only by dairymen in the late summer. Many fallen trees, the work of winter storms, lay across the road, and much accumulated brush impeded our progress, which, even at the best, was slow. We felt rewarded for our efforts, however, when we reached the summit, where the willows were only in bud and the grass just peeping out. Numberless chickadees were flitting about, besides various other species of bird-life. Our elation was short lived, however, for a blinding rain-storm, ushered in with terrific thunder and lightning, soon made dismal the merry, sun-lit woods. * * * After a while the rain

ceased and we proceeded on our way, but soon the deep snow made the road impassable, and we were compelled to unharness the horses, packing only the necessities on their backs, in order to continue. In places small streams had undermined the snow, in which the horses would sink deep, shifting the pack in their efforts to right themselves. Half a mile of this disheartened us and we turned back; but when we reached our wagon we found we were unable to turn it on the narrow road-bed. Not having eaten since breakfast, and being wet and cold, we were indeed in a sorry plight. After unloading the wagon we finally succeeded, inch by inch, in turning it around, and a mad ride down the grade brought us again to Georgetown Junction; and a few miles farther on we reached Echo, where we built a roaring camp fire and dried our outfit."

From June 11 to 13 (1903) was spent in fieldwork at Phillips' Station, but without noting any Pine Grosbeaks; nor were any seen in the vicinity of Star Lake where we camped on June 26 and 27.

In 1906 the Lake Tahoe region was visited in August and September, a much later time than on any previous trip, and when one would rather expect to find juvenile *Pinicola* in evidence. Fieldwork was done in the higher altitudes, at Phillips' Station August 12 and September 6, and at Star Lake August 24 and 25; but none of the birds in question were recorded.

During 1909 a trip was taken to Cold Creek Meadows on June 3, while from June 11 to 13 was spent at Deerington's, a mile east of Phillips' Station. At both places owing to the lateness of the summer the ground still lay hidden beneath deep snow. Although all of the commoner alpine species were met with in their usual numbers, I failed to find any Pine Grosbeaks. On June 24, at Marlette Lake, Nevada, 8000 feet altitude, the Ruby-crowned Kinglet, Sierra Grouse, Clarke Nutcracker, Sierra Hermit Thrush and other boreal birds were found, but none of the much-sought Grosbeaks. On June 28 Heinemann and I started on an extended tramp through the mountains that encircle the southern end of Lake Tahoe.

It was near the end of the trip, at Lake-of-the-Woods, elevation 8000 feet, on July 1, that we saw our first Grosbeaks. It was a little after daybreak and, as the welcome rays of the morning sun came filtering through the trees about our camp, we became aware of the presence of a pair of these birds. The Pine Grosbeaks were watched with that extreme interest which must ever be given by the oologist to birds whose eggs remain unknown to science. The pair staid about our camp for some time, feeding on the ground and in the trees. If the birds were nesting we failed to gain any clue of it from their actions, for they flitted from branch to branch and from tree to tree in a leisurely and unconcerned fashion, finally taking wing across the lake and disappearing in the heavy timber.

While our efforts in 1910 were principally confined to taking the eggs of the Gray-crowned Rosy Finch, nevertheless it was on the two journeys to Pyramid Peak in quest of these eggs that we found more Pine Grosbeaks than in all the previous years combined. In 124 miles of fieldwork fifteen birds were seen, which shows, however, that the bird must be considered rare even in the most favorable localities. We found the bird absent in seemingly suitable territory which would show its distribution to be rather irregular. During all the previous years that we traversed this same region we found only a small fraction of the number now observed, which would further prove the bird's occurrence to be rather uncertain as well.

We saw the first bird for the season of 1910 on the Pyramid Peak Plateau

at 7500 feet elevation, on June 9; another was seen on the slope of Pyramid Peak at 9000 feet altitude on June 10; and on the day following 500 feet lower we watched a pair in a grove of firs for a considerable length of time. At Lake-of-the-Woods we noted another pair on June 12. Mr. Carriger also observed a lone individual; and, later in the day, on the top of a nearby ridge at 8500 feet, another pair was seen. On June 13 near Deerington's, at 7400 feet, we came upon a male, in rich red plumage, sitting on the branch of a pine sapling a few feet up.

All the birds were remarkably tame, seemingly taking but little notice of our proximity, and all were watched as long as it was practicable. We observed most of them feeding, usually in the trees although occasionally on the ground. Others, quietly perching on some pine or fir branch, sat for such a long time unmoved as to give us the impression that they were either admiring the scenic surroundings or indulging in a day-time nap after the manner of a nighthawk.



Fig. 66. PERSONNEL OF THE 1912 EXPEDITION LEAVING
BASE ON LAKE TAHOE, JUNE 11; LEFT TO RIGHT,
LITTLEJOHN, "JIM", RAY, HEINEMANN

No birds were heard to sing, and the mellow call note was given but infrequently. Carriger freely acknowledged as we left the summit that, in respect to their nesting habits, the birds presented the most puzzling problem that he had ever attempted to solve.

On the second trip to Pyramid Peak in 1910 I noticed five more birds, three at Lake-of-the-Woods on June 22, and two near Phillips' Station June 23. Although somewhat later than our previous trip, the actions of the birds remained the same and no progress was made towards solving the problem of the bird's nesting.

On our return to San Francisco, in reviewing the results of our work afield, while we had to acknowledge that we had made little or no headway in the solution of the Pinicolan nesting problem, it was this very elusiveness that made us the more determined to persist. So, like the trip of 1910 that was planned pri-

marily to take the eggs of the Gray-crowned Rosy Finch, that of 1911 had one principal object in view, to take those of the California Pine Grosbeak.

During the winter and spring of 1911 it was reported that there was more snow in the High Sierras than the white man had ever seen before, and as I found on reaching Lake Tahoe, on May 13, that the truth had not been exaggerated, Carriger and Littlejohn, who were to join me, delayed coming until June 4, and even then it was not deemed advisable to start to the Pyramid Peak region until six days later. As all over the summit country we found deep snow, we naturally expected to find it still deeper up around Pyramid Peak, but we were scarcely prepared for the sight that met our gaze at the top of the Echo-Forni trail the following afternoon, June 11.

Under the lofty pines and firs, stretching unbroken in every direction, were great snowy drifts, so high in places that the smaller trees were almost hidden, while meadows, roads and brooks, all lost to view, made once familiar localities now hard to recognize. In places the larger streams had cut their way through the snow, leaving high steep banks rising on each side, to cross over which was both difficult and dangerous. In other places the soft condition of the snow and hidden water beneath made travelling even more perilous. Notwithstanding the deep snow considerable birdlife was in evidence, although not, it seemed, in its usual abundance. At 7500 feet altitude, where snow on the ground was over ten feet in depth, Carriger excavated the nest of a Mountain Chickadee holding eight almost fresh eggs; and, as another nest of this bird had been found in the morning near Phillips' Station with seven eggs, it was evident that while the severe climatic conditions had somewhat delayed, they had not prevented, these birds from nesting.

Although we had left Phillips' Station at 6:45 A. M., it was 2:35 P. M. before we came to the lower end of the Forni Meadow. From here we were glad to see that some of the old dairy houses were still standing after the storms of a winter that had destroyed so many homes at much lower altitudes. As we neared the cabins Carriger and Littlejohn, weary of the heavy pack and the hard climb, could not refrain from hurrying on; but I stopped for a time in order to take the photograph herewith shown (fig. 63).

The following morning we arose by candle light and by 5:50 A. M. we were plodding up over the snow, which was now hard, to still higher elevations. The extent of these drifts at 8500 feet is shown in the accompanying picture (fig. 65). The weather continued sultry and the heat, due to the reflection from the snow and to the lack of a breeze in the narrow snow-cañons, was very oppressive. Although we worked the entire day, scarcely pausing for a rest, we did not find a single Pine Grosbeak, notwithstanding, too, that we listed twenty-four species of birds and worked from 7,500 to 10,020 feet altitude. The only nests found during the day were one of the Mountain Chickadee with six fresh eggs, one of the Sierra Creeper with two eggs, also unincubated, a newly drilled home of the Williamson Sapsucker, and a just completed nest of the Blue-fronted Jay.

There was considerable difference of opinion among the members of our party as to why we had failed to find any representatives of the sought for Grosbeaks. Personally I was in favor of further field work, but as no one echoed this sentiment and as our scanty supply of provisions precluded more than another day's stay, we finally decided to leave the following morning. A different and longer return route was selected, however, which would allow us to make considerably further search between 7000 and 7500 feet elevation.

We reached Phillips' Station late the following afternoon, however, without having seen a single Pine Grosbeak. In ornithology, as in politics, it seems that the unexpected so often happens; and so it occurred the following morning, when we came upon a pair of the long-sought Grosbeaks by the roadside near Deerington's. One of the birds was on the ground and the other on a fir bough just above. The discovery brought us to an abrupt standstill, and while engaged in observing the pair we saw with disgust the approach of a six horse mountain team. On it came, with the crack of whip, the creak of wheels and the clatter of hoofs. Our birds paused a moment and then took wing. Wistfully we watched them as they flew up the mountain side until they were lost to view. With the exception of a pair I closely observed for several hours feeding in the trees on

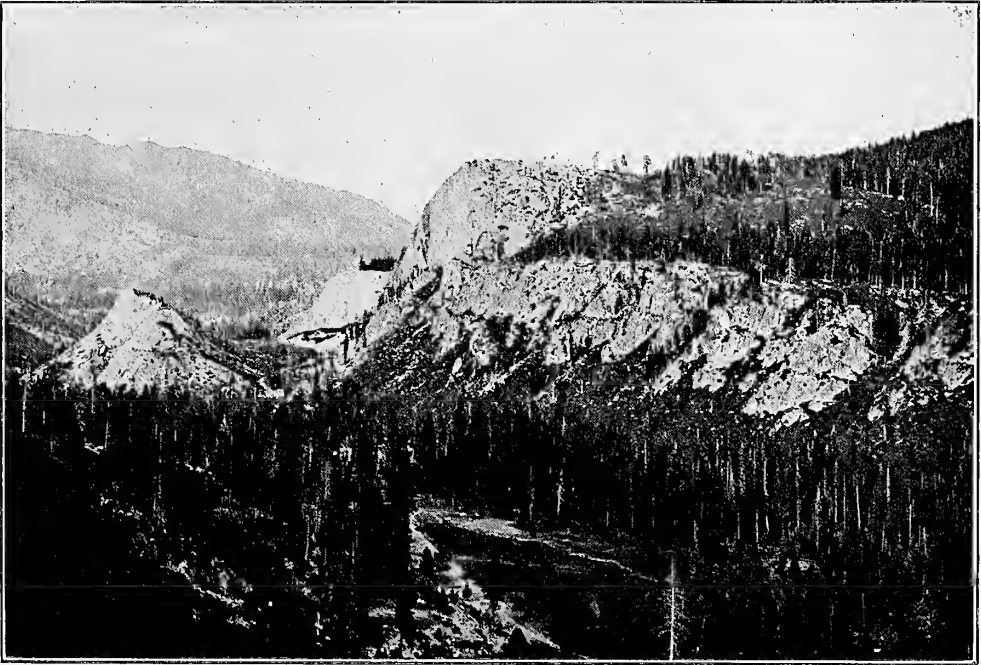


Fig. 67. ECHO, ELEVATION 5700 FEET, THE NEAREST POST-OFFICE TO THE TYPE LOCALITY OF *Pinicola californica*; THE PHOTO GIVES AN IDEA OF THE RUGGEDNESS OF THE COUNTRY EN ROUTE; IT IS NEAR HERE THAT BOTH A TRAIL, AND A ROAD START FOR THE PYRAMID PEAK REGION, THE FORMER BEING DIRECTLY ACROSS THE STATE ROAD OPPOSITE THE TALL DEAD TREE IN THE FOREGROUND

the edge of Cold Creek Meadow on June 24 these were the only birds seen during the year 1911.

At the beginning of the present year (1912), notwithstanding past reverses, plans were laid for a return journey to the Pyramid Peak region to make another search for the eggs of the California Pine Grosbeak. Both Littlejohn and I desired to make another attempt, but Carriger, although also willing, found that he would be unable to accompany us. Heinemann, my companion on many former trips, volunteered his services as photographer, of which we were very glad to avail ourselves.

By early spring every detail was carefully worked out, as we endeavored where we could to overcome the difficulties and prevent the mistakes of previous

years. Among other things suggested was the advisability of seeking some new territory in the bird's range. Grinnell in his *Check-list of California Birds* gives this as "the Boreal Zone of the Central Sierra Nevada Mountains from Placer County south to Fresno County." After due consideration, however, we all agreed that familiarity with any locality was a decided advantage and the Pyramid Peak region polled a unanimous vote.

The second point to be settled was the transporting of sufficient supplies to allow for a stay of at least ten days in the region. The High Sierras above 7500 feet altitude are by no means easy of access, as at these elevations deep snow often covers the ground until July or later; it is in fact this inaccessibility of the bird's summer home together with its restricted geographical range, that accounts for its eggs being peculiarly difficult to secure. Experience had proven that we were unable to carry sufficient supplies afoot and as it would be impracticable to use either a horse and wagon or pack-horses, a pack-burro appeared to be the only possible solution. This invaluable aid to our quest we arranged to obtain at Lake Tahoe.

In the matter of stores, Heinemann, commissary-in-chief, prepared a list of provisions, especially adapted to the trip, which would allow for exactly twenty cooked meals, and ten luncheons in the field. Each meal was portioned out and labeled and, on our return, the consensus of opinion was that the method was a decided improvement over the usual way. Our equipment in other respects was equally complete and included, among other things, waterproof covers for all members of the party, including the pack-burro, which would enable us to continue notwithstanding the rain or snowstorms which are of common occurrence at any time in these altitudes, regardless of the calendar, the predictions of the weather-bureau, or the pleasant prophecies of the spring-poet.

In the Pyramid region the pines and firs often spear skyward to such a height that a nest, located in some situations, would be inaccessible by ordinary methods of fieldwork. Frequently with these giants of the forest it is from 60 to 90 feet before the first limb branches out, and owing to the hugeness of the trunk and the soft condition of the bark, steel climbers are practically useless. To overcome this difficulty we carried long coils of rope and sufficient carpenter tools to build a rough staging if necessary. Of primary importance, too, was a really wonderful contrivance of Chase Littlejohn's that would enable us to lift eggs from a nest on a branch even fifteen or twenty feet out, and with perfect safety. Equally invaluable, too, and also devised by Littlejohn, was a partitioned collecting case with removable compartments lined with eider-down cloth. Specimens placed in this case could be lowered, in offhand fashion, from any height, in absolute security.

But by far the most important point to be settled was the selection of the proper time to visit the region. As no actual nest of the bird had ever been found, this was purely a matter of individual calculation. To go by the scant information obtainable one had two diverse alternatives: on the one hand was Price's statement that the birds were late breeders, as he had seen young birds just out of the nest on July 29 (which would make about July 1 a proper time for eggs); while on the other hand (speaking of another subspecies of the Pine Grosbeak found in the Rocky Mountains) was Coues' statement that near the timber line in Colorado he noted young birds fully fledged in June. This latter, although an indefinite date, would put the proper time at least a month earlier than the date by Price's reckoning.

Personally, however, I was not greatly influenced by the findings of either Price or Coues, for while I considered them both to be correct in their statements I further believed Price had simply found the young of late, and Coues of early, breeding birds. Being of this impression I had nearly always visited the region during the month of June; for I could see no reason why the nesting time of *Pinicola* should be so radically different from 95 percent of the Sierran avi-fauna, which nests between May 15 and June 30, and especially as the remaining five percent consisted of such remarkably early nesting birds as the Clarke Nutcracker, Canada Goose, American Merganser and some of the Raptores.

The fact of *Pinicola* being resident, or at least migrating only a short distance, too, seemed to indicate that the time of nesting would be rather earlier than later, notwithstanding the high altitude of its home; for being undoubtedly a tree-nesting bird and arboreal in its habits it did not seem that it would be so

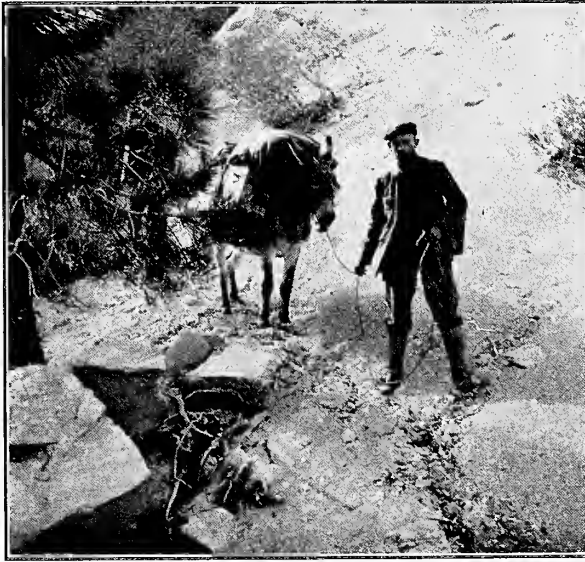


Fig. 68. "JIM" AND HEINEMANN ROUNDING A PRECIPITOUS MOUNTAIN SIDE AT 6500 FEET ALTITUDE

greatly affected by the depth of snow on the ground, or other severe climatic conditions, as to delay nesting a month later than the majority of species in the same habitat. Littlejohn suggested that if there was a delay it might be caused by the lack of some certain food supply for the young. To me, however, this explanation did not seem tenable.

While our own observations rather favored Price's theory in the respect that no young of the year were noted in June or early July, yet on the other hand they also favored Coues' in that we found no birds engaged in nest building in late June or early July which according to Price would be the proper season for such operations. In fact, as before stated, we found at all dates the birds apparently leading a sort of Bohemian life; but I accounted for this pelagic habitus by the fact that as the extreme limits of the nesting season of most Sierran birds extended from May 10 to July 15, it allowed them considerable latitude in this respect.

To give examples of this wide variation in nesting dates of individual species I may state I have found scattered pairs of various birds nesting in Lake Valley between May 15 and 20, while the majority were still in flocks. To cite another instance: on the shore of Lake Tahoe on June 25, 1911, young-of-the-year of *Carpodacus cassini* were noted, while a few yards away I flushed another bird of the same species from a nest containing two fresh eggs.

Two other reasons could also be offered for the wandering mode of life of *Pinicola*. One of these was that the birds were so extremely wary that it was impossible to either flush them from a nest or see them return to it and that their continued journeying through the woods was simply done in their efforts to lead us away from their nesting grounds. Another explanation was that many of the so-called pairs observed were not in reality pairs at all but two males, as Ridgway, writing of the nearly allied form *canadensis* states (Birds of North and Middle America, I, p. 61): "Some males (immature?) are exactly like the



Fig. 69. A MEADOW-EDGE NEAR FORNI'S WHERE A PAIR OF CALIFORNIA PINE GROSBEAKS WAS SEEN JUNE 14, 1912; ALTITUDE 7500 FEET

adult females in coloration." Although Price made no mention of this strange condition existing in any of the specimens he secured of *californica*, yet, on account of the close relationship between this bird and *canadensis* such a condition seemed not at all unlikely.

Basing my calculations upon my theory in the matter and after a careful comparison of nesting dates of certain species for a number of seasons at Forni's (7500 feet), Phillips' Station (6900 feet) and Lake Valley (6220 feet), it seemed apparent to me that June 1 of a normal year would be the proper date to visit the region. At this time, I felt, that some birds at least would be found engaged in nest building, and nest-building time is often the only period when nests difficult to find can be located; and from the height of the trees and the thickness of their foliage it appeared that those of the Pine Grosbeak would be of this nature.

To find just what date in 1912 June 1 of a normal year would be, however,

was not particularly easy; for each Sierran summer is somewhat different from the preceeding and what might be termed the "shift" of the Sierran season which results from a number of causes, is very puzzling. In lower zones, here along the coast, for instance, hummingbirds have been found nesting in January, bush-titmice in February, chickadees in March, juncos in April, warblers in May, flycatchers in June, and vireos in July. In the High Sierras, however, the season of reproduction is very short and with few exceptions all birds nest between May 15 and June 30; it is on account of this shortness of the season that the "shift" has such a marked effect. Above 7500 feet altitude there are but very few resident species and in the lower zones it is this class that contains the bulk of the early breeders.

The season of 1910 in the Tahoe region was one of the earliest known to the old settlers and, in respect to nesting conditions, was at least from fourteen to



Fig. 70. HEINEMANN AND LITTLEJOHN ON THE SNOW
NEAR TIMBERLINE AT ABOUT 8750 FEET ALTITUDE;
PHOTO TAKEN JUNE 17, 1912, WHILE EN
ROUTE TO PYRAMID PEAK

sixteen days earlier than normal. On the other hand, 1911 was a year of very heavy snow-fall and about a week later than normal. On June 9, 1910, we found only scattered patches of light snow on the Forni meadow, while on June 11 of 1911 we found it from 6 to 10 feet in depth. With the coming of 1912 it seemed the weather pendulum was swinging back again, for the winter remained remarkably mild in character. We kept a close watch on the snow reports of the U. S. Weather Bureau, and the following table shows comparative conditions for the last six years on February 28.

TABLE SHOWING INCHES OF SNOW ON GROUND FEBRUARY 28

	1907	1908	1909	1910	1911	1912
Summit S. P. R. R., Placer Co., 7018 ft. altitude	88	74	213	72	215	23
Tahoe City, Lake Tahoe, 6220 ft. altitude	—	—	66	40	78	19
McKinney's, Lake Tahoe, 6220 ft. altitude	—	—	72	38	79	14

The spring weather continued mild and trains were run on mountain routes and stock was turned out to pasture, around the lake, long before the customary time. In fact everything now pointed to an unusually early summer. Littlejohn was the first of our party to visit the Tahoe region, reaching the Lake at the end of April. While the purpose of his trip was more particularly to study Tahoe's water-bird-life, nevertheless he kept a sharp lookout for Pine Grosbeaks as we were especially interested to know whether they occurred in Lake Valley at this season. If they could be found at this altitude (6220 feet) it would be conclusive evidence that, having to migrate to higher elevations to nest, the birds could scarcely do so before May 15 or later.

While Littlejohn secured some very interesting specimens and notes on spring migration no trace of Pine Grosbeaks was found. During his stay, which was until the first week in May, storms of hail, sleet or snow prevailed almost continually, and while of course at this altitude the late snow quickly melted, this change in weather conditions greatly retarded the nesting time of Sierran bird-life.

The writer reached Bijou, Lake Tahoe, our 1912 base, on May 19, in time, should the season be early, to still reach the Pyramid Peak region at a proper date. En route to Bijou conditions everywhere showed it to be a year of unusually light snowfall. The afternoon I arrived was stormy and light snow began falling and continued intermittently for three days, making field work very disagreeable. Two days about Bijou convinced me that notwithstanding the mild winter the avian nesting time would not differ greatly from that of 1911, a year of extremely heavy snow-fall. To find exactly what this difference would be, however, required considerable further field-work. By the 25th of May I felt sure of the late seasonal conditions and immediately wrote Heinemann and Littlejohn to change the date of their arrival from May 28 to June 8.

Heinemann arrived on the above date and Littlejohn the day following. As our pack burro had already been brought up two weeks previously from Carson Valley, Nevada, there was nothing to delay our departure. We left Bijou at ten o'clock on the morning of June 11 and if the picture taken before we started shows some new innovations in loading a burro the credit must be given to Littlejohn. Although the day was very sultry and the road the greater part of the way led through heavy granite sand, our burro, a very willing animal, led by a rope, followed us without urging. Meyer's Station, at the foot of the stage-road summit was made at 1:26 p. m. Here we fell in with McMillan, a forest ranger who very kindly helped us to rearrange the entire pack and also initiated us into the use of the almost indispensable "basco hitch" in roping it on. Meyer's was left at 3 p. m.

On the way to Phillips' Station we noted a number of the rarer forms of alpine bird life, as well as several interesting nests with eggs, and near Deerington's I saw the first California Pine Grosbeak of the year as it flew from a tall fir by the roadside into a distant maze of foliage.

We felt, with the occurrence of this bird on our first day out, that the trip had started auspiciously; but when, sometime later at Phillips' Station, we saw *three* of the birds alight but a few feet from us, on a large and brightly colored umbrella that shaded the seat of a mountain lumber wagon it almost took our breath away. The birds staid but a few moments, however, and before a gun could be brought they had winged their way across the meadows to the thick timber of a neighboring cañon. Needless to say our now famous "flock" of

grosbeaks remained the principal topic of conversation for some time to come.

As we had planned previously we set out next morning to work the summit country around Phillips' Station to secure if possible a Pine Grosbeak or so for the purpose of determining, by dissection, the nearness of the nesting date. Near Deerington's Littlejohn saw our fifth bird, but was unable to secure it. A heavy and very steady rain now set in and finally forced us to seek shelter in an empty cabin. Hour after hour the rain rattled on the roof, and twice I made short journeys to nearby groves but the steady downpour had driven most birds to shelter and as it had made travelling very unpleasant, after the second attempt I desisted and joined Littlejohn and Heinemann who were dozing before a cheerful fire in the cabin. At four o'clock, as the storm showed no sign of abating, we returned to Phillips' Station.



Fig. 71. VIEW FROM PYRAMID PEAK, 10,020 FEET ALTITUDE, LOOKING NORTH; THE CALIFORNIA PINE GROSBEAK HAS BEEN NOTED UP TO TIMBERLINE, WHICH OFTEN EXTENDS TO 9250 FEET; CRYSTAL PEAK IS IN THE IMMEDIATE FOREGROUND; DICK'S PEAK, 10,015 FEET, IS THE HIGH MOUNTAIN RISING IN THE BACKGROUND; PHOTO TAKEN JUNE 17, 1912

Although it was still cloudy the rain had stopped and Wade, as the above place is also called, was left at 8:45 next morning. The road, going west, descends sharply and at 10:45 we reached Echo, 5700 feet elevation. Here, near the foot of the high cliffs shown in the picture (see fig. 67), Littlejohn saw a flock of six Band-tailed Pigeons (*Columba fasciata*), a bird of rare occurrence in this region.

At 2 P. M., after lunch by a roadside brook, we came to the Georgetown Junction road which is marked by the ruins of a tall, solitary chimney, all that remains of a famous pioneer road-house. The Georgetown road is now but seldom used, excepting by cattlemen taking their herds in late summer to alpine

pasture lands, and in many places it was covered by rank overgrowth and marked, almost everywhere, more or less, by all the sins of wintry storms.

Every mile now brought us nearer to the goal of our journey and we watched eagerly for nests that would indicate how far the aestival season had advanced. We had noted three nests of the Western Robin since leaving Phillips' Station the first at 6500 feet elevation and the others at 5500 feet, all with complements of fresh eggs; but as the nesting of this bird is so irregular and extends through such a long season it afforded but a poor index to seasonal conditions.

Our first nest on the Georgetown Road I found at 5800 feet, and was of the Blue-fronted Jay, six feet up in a black oak with four half fledged young. The second, at 6250 feet, was a Slender-billed Nuthatch's, in a cavity of a dead tree but two feet above the ground, with five callow young. Heinemann, at 6500 feet, found the third nest, one of the Yellow Warbler, in a bush by the roadside with four fresh eggs. These three nests seemed to indicate that, when the 7500 foot level was reached, conditions would be what we had calculated upon finding.

The road, which had continued winding and steep, now made a wide, final curve around the mountain side and landed us upon the edge of the Pyramid Peak Plateau, a region of vast forests and endless, wide, deep cañons. Where the precipitous character of the country did not cause the streams to descend in foaming cataracts or roaring, vapory waterfalls, limpid and swift they sped through the forests or peacefully wandered through fertile, boggy meadow lands, occasionally emptying into or emerging from some glassy lake of that wild, picturesque beauty which only high altitudes can bestow.

It was now not long before the road forked, one branch leading north to Wright's Lake and Moratini's, and the other east to the Forni Meadow and Pyramid Peak. The first find on the Forni branch was by Littlejohn, a newly built nest of the Green-tailed Towhee which was placed a few feet up in a thorny ceanothus by the roadside. The road kept steadily, although very gradually, ascending towards the base of Pyramid Peak, the direction, east, being directly opposite to what we had been travelling in order to reach the Plateau. About us, the budding willows, the fresh green grass and bright flowers of the meadowy tracts showed the region to be still in its vernal season. Soon scattered patches of snow, fast melting in the warm sun, lay on the road, and as we proceeded they grew larger and larger until soon the road was lost beneath them. I endeavored to trace the road from the occasional glimpses where it emerged at times, while to Littlejohn and Heinemann was given the equally difficult task of piloting "Jim" with his 163-pound load over, or rather through, them; for now, in the late afternoon, the snow was very soft. At times, when the burro floundered about the great drifts, it seemed as if he could scarcely continue unless the load be taken off. Where possible, however, we made wide detours to avoid the deeper drifts and, where drifts hemmed us in, we tamped a narrow path through them which the sapient pack-burro was quick to take advantage of.

At one place I came upon a fir stump with a likely looking cavity and on tapping it and hearing the sibilant note of the Mountain Chickadee I decided to investigate further. The decayed wood yielded quickly to a sharp hand-ax and a set of seven eggs, slightly incubated, soon lay revealed on a thick bed of fur. Scarcely a quarter of a mile farther on I found another cavity in a fir stump from which as I chopped the hissing of the chickadee within gave notice of its being occupied. The nest held eight eggs in the same condition as the first set: both were of the unmarked type. The snow about the stump varied from three

to four feet in depth. The investigation of these nests did not cause us any delay as our burro required frequent rest; but as it was now dusk these were made very short as we were anxious to make Forni's before nightfall.

In the cooler atmosphere the snow was now becoming more firm and fortunately, too, somewhat scattered, allowing us to go along at a rather lively pace. A short distance from the nest of the chickadee I caught sight of two Pine Grosbeaks on an upper limb of a lofty red fir by the road. We could see that one of the birds, fluttering with outstretched wings and open bill, was being fed by the other which appeared, in the fading light, to be a red-plumaged male. We watched the birds with disappointment, for it now seemed apparent that the early breeding record by Coues of another race in Colorado was very likely to apply to the Californian race as well. But soon we witnessed a rather remarkable



Fig. 72. FEMALE CALIFORNIA PINE GROSBREAK AS SHE
APPROACHED NEST; PHOTO TAKEN 35 FEET ABOVE
THE GROUND; THE DENSITY OF THE FOLIAGE
AND CONSEQUENT SHADOWS PREVENTED
THE BEST RESULTS PHOTOGRAPHICALLY

change in the actions of the birds, for they began billing and cooing and all our calculations about hornotines and an early nesting season were cast aside. Excitement ran high, for it seemed more than probable that the birds were nesting, or about to nest, in this very vicinity. Further search was prevented now, however, by approaching darkness.

Although Forni's was yet miles farther on, night close at hand, the road snow-covered and hard to follow, and the burro completely tired out, we proceeded on our way jubilantly, for at last it seemed success was within our reach. Nine feet up, from a hole in a dead fir along the road, I flushed a White-headed Woodpecker, but I did not climb to it. Swift running streams now became numerous; it was necessary to ford these as the bridges had all rotted or washed away. "Jim", unlike most "Nevada Mockingbirds", showed no particular aversion to the

water and plunged across them gallantly. In fact, on one occasion he elected to take a rest in mid-stream much to our surprise and discomfiture.

When within about a mile of Forni's I relieved Heinemann of leading the burro while our official photographer and Littlejohn hurried on to the cabins to prepare the evening meal. Being fairly well acquainted with the locality and finding the road, which now headed across a boggy meadow and around a swampy shallow lake, almost impassable, I struck out over a heavily timbered ridge. After some trying experiences I finally reached the cabins at a quarter to eight.

Here our fagged-out burro was given shelter in a log barn which we found well stocked with hay. With this and with the addition of oats, a delicacy held in high favor by all "Sage-brush Canaries", of which we carried a 25 pound sack, our song-bird fared well. Within, the alpine dwelling was soon made cheerful by the light of lamps and candles. With the crackling of a fire and the grateful odor arising from steaming viands all the hardships of the day were soon half forgotten.

As the photo shows (fig. 62), Forni's is situated at the head of a long, glacial meadow at the base of Pyramid Peak. Almost at our cabin door and fed by the snows of Pyramid flowed a merry little brook that furnished us with crystal liquid during the day and sang us to sleep with its pleasant hum at night.

The first day afield in any region is ever the most enjoyable; and with much expectant enthusiasm, boyish if you will, we arose early next morning and were soon abroad in the pleasant, crispy, sunny atmosphere. As we journeyed down the meadow, retracing our steps of the night before, we saw Red-breasted Nuthatches, California Creepers, Mountain Chickadees and Sierra Juncos, some of which were engaged in nest building, and as the nest of the White-headed Woodpecker I had located the night before was found to contain five almost fresh eggs, we rather hurriedly and feverishly endeavored to cover the miles that lay between us, and where the Pine Grosbeaks had been previously seen. Several miles before we came to that now historic spot I came upon another pair billing on the limb of a lodge-pole or tamarack pine. I immediately gave the pre-arranged signal call and Heinemann and Littlejohn joining me the birds were observed from three different points at once. After some time, however, the pair flew away to a far-off hillside where all track of them was lost. Neither were we able to find any trace of the pair seen the previous night although we spent considerable time in the vicinity.

We lunched nearby at the edge of a hill-top clearing which gave a rare view of the surrounding mountains. Here I spied an Audubon Warbler engaged in building a nest on the perilous end of a long, drooping, fir branch 75 feet up. As we viewed the nest we all echoed the hope that even with the loss of an opportunity to try our various paraphernalia, we much preferred that any nest of the Pine Grosbeak found would be in a more accessible situation.

On the way back, on reaching the Forni meadow, Heinemann and Littlejohn went on to camp while I continued to spend some further time afield working the section that lies southeast of the meadow. Here I came upon a male Pine Grosbeak singing in a fir top, and later a pair which, engaged in preening their feathers, I watched for nearly two hours. I felt sure I was unseen by the birds so stealthily had I approached, and when they took flight I was reasonably certain it was the flight of birds who were still roaming about with no particular interest as yet in any fixed locality. On this and succeeding days in our search for a

home of the Pine Grosbeak we found some very interesting nests with eggs including such rarities as the Lincoln Sparrow and Green-tailed Towhee, which I hope to describe at some future time.

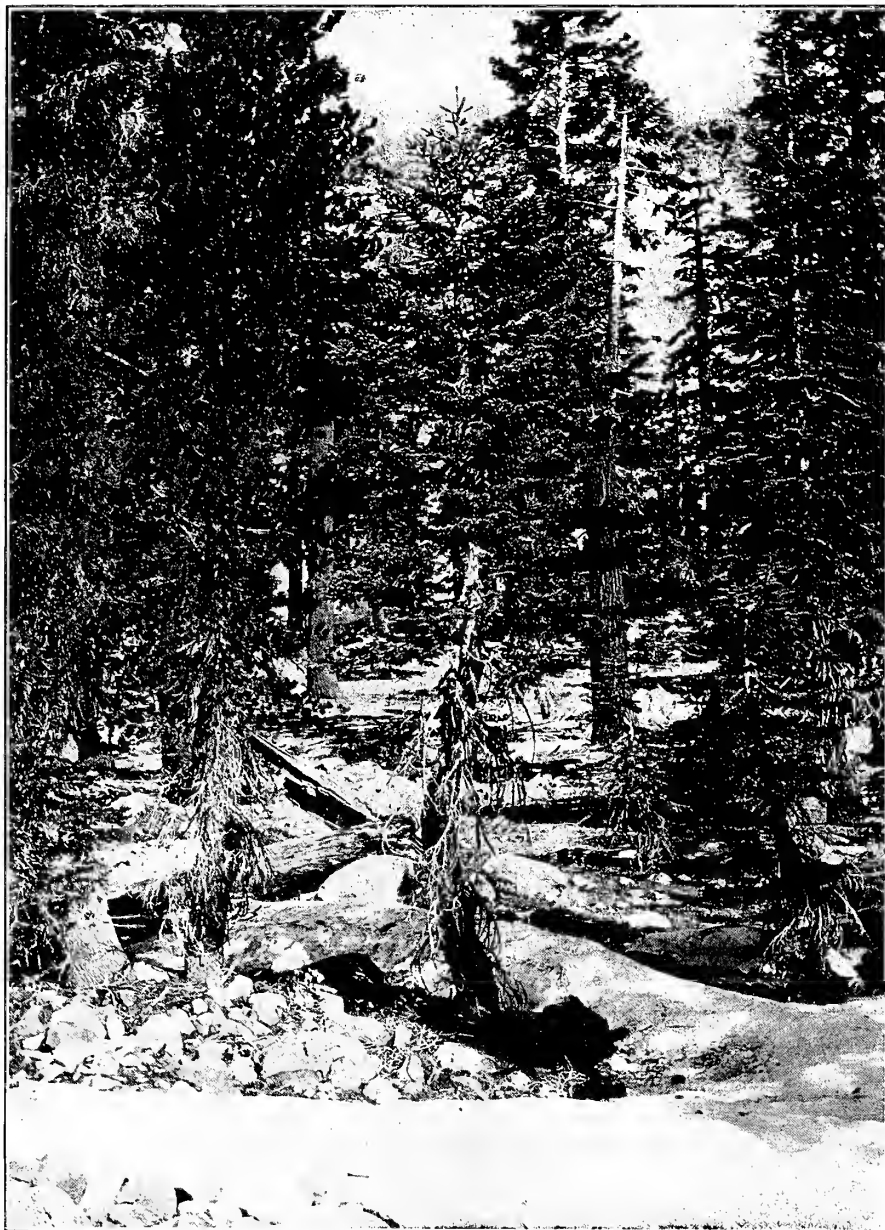


Fig. 73. FIR (AT NEAR CENTER) IN WHICH THE FIRST NEST OF THE CALIFORNIA PINE GROSBEEK WAS FOUND; SCATTERED PATCHES OF SNOW WERE STILL ON THE GROUND BENEATH THE TREES AT THIS DATE, JUNE 15, 1912

As the day's work, which had been done between 7250 and 8000 feet altitude, had been without result, as far as tangible Grosbeak-nesting evidence was concerned, we decided the following day to go to the limit of the timber which is at

about 9250 feet elevation. We started the ascent early and long before noon we were in a snowy region of an intense dazzling whiteness. From the snow which everywhere covered the ground came a peculiar white light as from myriad tiny suns, and which made the region seem more like fairyland than earth. In this snow country except for noisy Nutcrackers birds were few, an occasional Mountain Chickadee, Mountain Bluebird, Sierra Junco or Western Robin being all that were noted. Notwithstanding this scarcity, however, we put in half the day scanning the trees with the forlorn hope that one might contain one of those shallow platforms of twigs and rootlets, peculiar to the family of grosbeaks, which our mind's eye had often pictured.

At 8500 feet altitude, where a roaring torrent billowed over rocks and boulders and through high drifts of snow, we stopped for luncheon to compare notes. To all it appeared necessary that the very next bird be secured for purposes of dissection. We now followed the waterway for some little time when, as it started a very rapid descent, I who happened to be leading, crossed to the south bank. Littlejohn, interested in the distant movements of a Williamson Sapsucker, crossed also and coming later to a fork we continued southwesterly. It was now a little after one o'clock and the three of us, about fifty yards apart, were rounding a very rocky hillside at the foot of which a shallow, placid lake glittered in the sunlight. Hearing the distant song of a Pine Grosbeak I drew nearer and soon saw the bird at the top of a fir about 200 feet high. Seldom if ever have I heard a more beautiful song than that which floated out from the top of the tall, massive fir and the effect of which the wild surroundings did much to accentuate. The day was calm and still; that almost deathly silence peculiar to high altitudes remained unbroken save for the distant roar of angry snowstreams.

The song of the California Pine Grosbeak does not, I think, bear so much resemblance to that of *Carpodacus cassini* (which Price has compared it with) as it does to that of the Black-headed Grosbeak. However, as it is so much more varied, melodious and rich than that of the Black-headed Grosbeak, the comparison merely serves to give a general idea of its style. The song consists of a series of trills, warblings and mellow, flute-like notes that must be heard to be appreciated. The bird as a songster ranks easily with the best of Sierran vocalists like the Ruby-crowned Kinglet, Water Ouzel and Sierra Hermit Thrush. Unlike the Western Robin which, perched on some tree top, will sing through almost the entire day, the Pine Grosbeak is not a persistent singer and only on rare occasions have I been given the opportunity of hearing its song.

As I rounded the tree the bird left its lofty perch and, alighting in a low fir nearby, began a peculiar melodious twittering which unfortunately at that time I did not know the meaning of. Although I disliked very much to shoot any Pine Grosbeak, and this one in particular, I remembered our previous agreement and called Littlejohn to the spot. He succeeded in only slightly wounding it, however, for when it struck the ground, it was apparent that the bird was still very much alive. To add to the excitement of the occasion, as Littlejohn shot, another Pine Grosbeak with heavy, startled flight fluttered out from an adjacent fir. As our wounded bird was racing away we had no time to investigate this, but started in pursuit. After catching the disabled bird we returned to where the second bird had flown from.

Littlejohn was slightly in the lead and when he reached the tree there, sure enough, on an open, outer branch in plain view, but sixteen feet up, was the

nest. To our joyful amazement, too, we noted the tail of a sitting bird projecting over the edge of the nest, it being evident that the bird had returned after but a very short interval. I do not believe I ever reached a nest more speedily, but

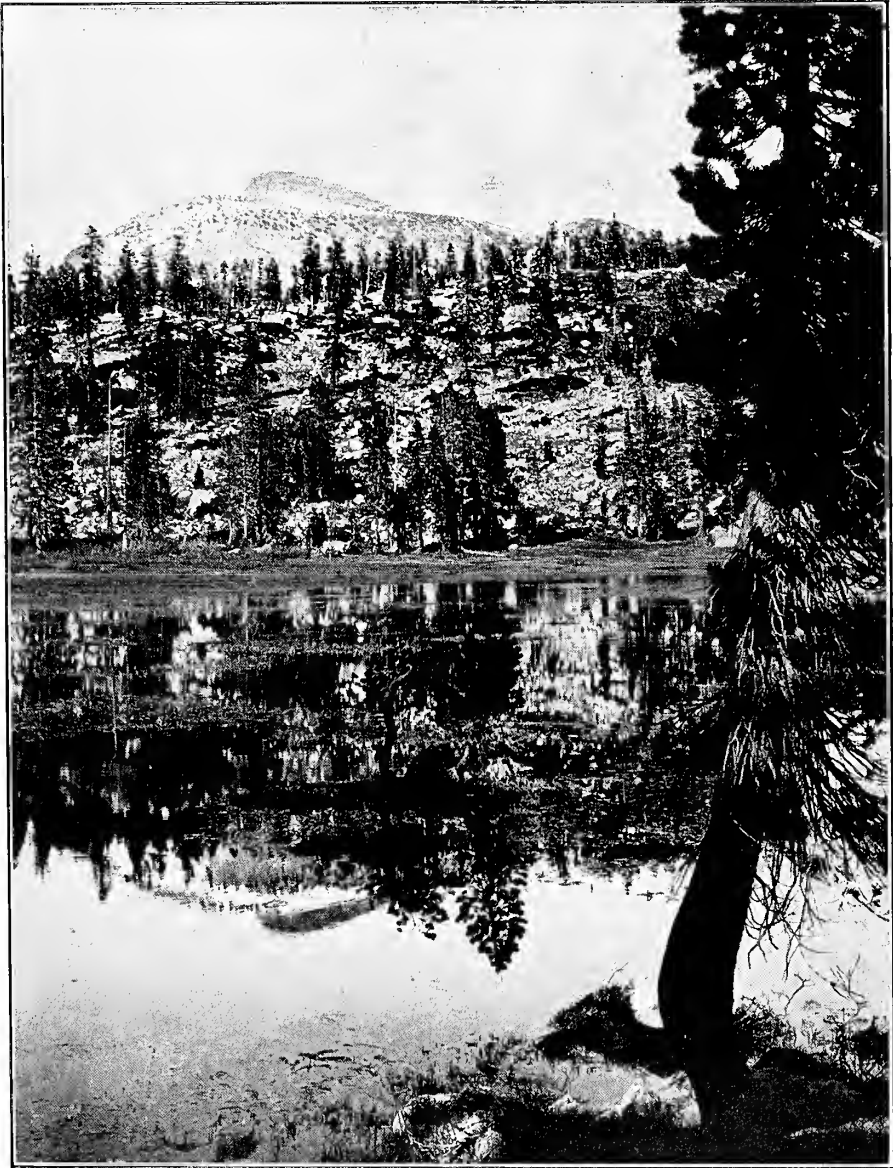


Fig. 74. VIEW TAKEN A SHORT DISTANCE FROM THE CALIFORNIA PINE GROSBEEK'S NEST, 'SHOWING CHARACTER OF THE COUNTRY IN THE BIRD'S SUMMER HOME; PYRAMID PEAK IS THE MOUNTAIN RISING IN THE BACKGROUND; DATE JUNE 19, 1912; ALTITUDE 8000 FEET

when I came within arm's reach the bird was so reluctant to leave that I could not refrain from pausing for a few moments to observe at such close range this *rara avis*, almost concolored except for the fulvescent plumage of the head and

neck. After gentle urging the bird was induced to leave, disclosing in a frail rootlet nest a single dark maculate egg with a rich blue ground—the imparting of which information brought prolonged cheers from below. The find was made at exactly 1:15 p. m. On account of being an incomplete clutch it was deemed advisable that I hastily descend, that a conference might be held. As we retired from the spot we were glad to see the bird shortly after come back to the nest. Littlejohn soon dissected the bird shot which, although having the yellow plumage of the female, proved to be an adult male. That a bird in this plumage was an adult in full song, and breeding, was proved. I believe this will be found to apply to the whole genus as well, that birds in this yellow phase of plumage are not necessarily immature as has been suspected.

It was now apparent, and to our great disappointment, that as we had unfortunately shot the male parent, the chances of obtaining a complete set of eggs were rather remote. Littlejohn felt sure, however, that the bird would soon lay one or more eggs at least, from the fact that she was sitting so close on the "single." It was for this reason we decided to return to the nest again a few hours later when, if the nest still contained but the single egg, we intended substituting one of the Western Robin marked with pencil spots in imitation of the Pine Grosbeak's. We determined on this course as we felt there was a great possibility now of the bird deserting and the egg being destroyed by the bird herself or other agencies.

On our return to the nest at half past three the bird was setting, but when flushed only the single egg was in the nest. This was taken and the substitution made, as previously planned. As before, the bird returned to the nest shortly after we left. Some distance away the collecting case was opened and the egg, a very richly marked specimen, was shown to the expectant eyes of Heinemann and Littlejohn. The following morning we made an early visit to the nest again, but although the bird was still sitting, only the substituted egg was in the nest.

The afternoon was spent in new territory southeast of Forni's. Here I came, at 7250 feet altitude, upon a male Pine Grosbeak in a low fir which we watched very closely, and when it flew away every tree in the neighborhood was inspected narrowly but without result. Returning I ran across a pair of birds near the lake shown in the picture (see fig. 74). After following them for some time over a rough country interspersed with snow-drifts, bog, boulders and snow-streams we found ourselves on a ridge near camp and our Pine Grosbeaks nowhere in sight.

On June 17 another early morning trip was taken to the original Grosbeak's nest. Approaching I noticed the bird absent but, to my great satisfaction, on climbing the tree I found a second egg had been laid which as before was replaced with one of the Robin. Both eggs in the nest were cold.

Returning to camp we were joined by Heinemann, and the ascent was made of Pyramid Peak, Littlejohn desiring to secure a specimen or so of the *Leucosticte*, Heinemann some photographic views, and I to study the topography of certain sections in the region, the summit of Pyramid affording an unequalled opportunity in this respect. On the trip, at 9250 feet, a nest of the Sierra Junco, remarkable for its elevation, was found with four eggs. In all, but half a dozen *Leucostictes* were seen and none secured. During the day we ranged between 7500 and 10,020 feet elevation, but no Pine Grosbeaks were encountered.

The following day (June 18) Littlejohn and I returned a second time to



Fig. 75. NEST AND EGGS OF THE CALIFORNIA PINE GROSBEAK IN PLACE; THE CAMERA DIRECTLY ABOVE, AND TWIGS SHOWING ON SNOW 16 FEET BENEATH THE NEST; TYPE SET

the locality where on June 13 we had seen the first birds on the Plateau. Here, in passing along the edge of deep snow-drifts which lay everywhere through the woods, Littlejohn came upon a female *Pinicola* feeding on the snow, while a brilliant red-plumaged male was flitting among the boughs above. In endeavoring to secure the latter the female was seen to fly to a nearby tree where she began hopping from branch to branch until a height of about 25 feet had been attained whereupon she flew to, and disappeared in, the thick foliage of a hemlock bough. Advancing nearer, Littlejohn could just discern the tail of the bird projecting over what might be a nest and which on my climbing the tree proved so to be. Being situated eight feet out near the end of the limb, and in a thick patch of foliage, it could not be seen from above except by spreading the branches apart. On doing this and after the sitting bird had been urged off with a long stick the nest was seen to contain three eggs. Being unable, without equipment, to do anything further, we started back to camp, Littlejohn and Heinemann going direct while I headed over the ridge to our first nest. Here, although the bird was seen nearby, the nest contained no further eggs.

On the following morning we returned, with Heinemann, to the second Grosbeak's nest with carpenter tools and sufficient boards to build a rough platform up in the hemlock, which would serve in securing the eggs as well as photographs of the birds. After the writer had climbed the tree, and the tools and lumber were hauled up, a strong though rough platform was built; and to show how remarkably close Pine Grosbeaks sit I may add that the bird remained on the nest during the entire time, nor did she flush even when the edge of the staging was placed and nailed but a few feet from her.

Heinemann came up next and being somewhat unaccustomed to tree climbing was aided by a rope around the waist. His photographic apparatus was now brought up and preparations made to secure pictures of the bird. These could be taken only as the birds approached the nest; for when sitting on the latter, she was almost invisible. Never have I seen any bird so persistently return to a nest as the Pine Grosbeak did; for no matter how often she was driven off she continued to immediately fly back, and often so quickly that we had no opportunity to get her on the plate. Owing to deep shade in the forest we soon realized that we could scarcely hope for the best results photographically. Considerable snow lay beneath the trees, but being in the shade and as we, too, were 35 feet above, its effect was not perceptible.

When flushed the bird almost invariably flew across to one of the nearby firs and pausing but a moment immediately returned. As our only opportunity for pictures lay in getting the bird in a certain position, and as she frequently lit close to a dark fir trunk or against the light it was necessary in all to flush the bird forty-one times. No photographer could wish for a more willing subject, for she promptly returned on each occasion. The bird was utterly fearless, coming at times very close to us and seeming rather puzzled than alarmed or angered by our aggressive operations. Once a Mountain Chickadee and at another time a Sierra Junco came near the nest-tree, and the female being off on both occasions, she joined her mate in driving them away. Another time, however, when a Western Robin lit close to the nest the birds showed no concern whatever.

The pictures shown were taken when the bird lit in a fir close by, the best being secured when the Grosbeak was on the extremity of a long branch in a rather open situation. The male only put in his appearance at intervals, and

while occasionally approaching quite close never came within arm's length as did the female. Sometimes the latter would hover directly over the nest melodiously twittering. Neither bird made any attempt to resent our intrusion as birds of a more combative temperament like the Brewer Blackbird or Olive-sided Flycatcher would have been apt to do; in fact, they were of a remarkably gentle and affectionate disposition, and a number of times the pair were noticed billing which shows this habit is not necessarily confined to the time of courtship.

The call-note of the Pine Grosbeak, and we surely had an unequalled opportunity for hearing it, is a two-syllabled call bearing some slight resemblance to the words "all-right". Although Chester Barlow has stated that it is a "harsh call-note like that of the Louisiana Tanager", we cannot agree with him. In the first place, "churtig", the call of the Tanager is not itself particularly unmusical and in the second place the call note of the Pine Grosbeak is much more melodious being peculiarly clear and liquid. It is of an earnest, pleasing, mel-



Fig. 76. ANOTHER POSE OF THE FEMALE CALIFORNIA PINE GROSBEAK NEAR NESTING-SITE

low character and directly opposite to "harsh" which the dictionary defines as "rough to the ear, grating, discordant and jarring". It will also be remembered that Mr. Price, in his notes, states that "the call is not loud nor harsh like that of the Western Evening Grosbeak."

As this was the identical place where we had seen two Pine Grosbeaks the evening we reached the Plateau we felt sure that these were the same pair of birds. At both nests observation showed that incubation was being done entirely by the female. In no instance was the latter fed on the nest but in some nearby tree. At other times the bird was seen foraging by herself, the bird's food being always so readily available that it was unnecessary for her to remain off the nest but for a very short period. We had visited this same locality several days before but on that occasion as the male was away and the female sitting close on an almost invisible nest, the Pine Grosbeak and her home escaped our notice.

After the photographic work was over, the nest and eggs with the parent

birds were collected. The eggs showed at least eight days incubation and they had lost, as is usual with most well-incubated eggs, a certain glossiness of shell and freshness of ground-color.

Leaving my companions to continue on to camp I journeyed over the ridges to Grosbeak nest number one. There, while a third egg was collected, the nest was undoubtedly deserted, for the lining was partially torn up, the eggs stone cold and the parent bird nowhere in sight. It being early in the afternoon I still had sufficient time to make camp and come back with Heinemann who took several photographs of the nest and eggs *in situ*. Measurement showed the nest to be sixteen feet above the ground, four feet out from the trunk and twenty-one inches from the tip of the branch. The red fir in which it was placed was on a sloping mountain side where the rather scattered timber rose



Fig. 77. FEMALE CALIFORNIA PINE GROSBEAK APPROACHING NEST; PHOTOGRAPHED 35 FEET ABOVE THE GROUND

amid huge boulders, fallen trees and fast melting banks of snow, some of which may be seen below the nest in the photograph (fig. 73).

The nest was simply a rough platform of twigs, principally fir, and was thickly lined with very fine light-colored grasses. So thick is this grass lining that eggs in the nest were not visible from below. The twig platform measures 6x8 inches, the grass nest cavity, $5 \times 4\frac{1}{2} \times 1\frac{1}{4}$ inches deep. With the exception of some eggs of the Raptores, perhaps, there are but few eggs to be found in California that are as richly colored. In describing their coloration I have used Ridgway's *Nomenclature of Colors*, 1886. In Ridgway's book, however, the paint on the plates has been unevenly

applied with the result that the color of nearly every individual plate varies more or less in intensity making an *exact* comparison difficult.

The ground color of the eggs approaches closely to Nile Blue (no. 17, Plate IX), but is slightly deeper and more rich in shade. The surface markings are spots and blotches, chiefly around the larger end, and in the form of a rough wreath, of black and of a rich deep brown called Vandyke (no. 5, Plate III). There are underlying scattered spots of Wood Brown (no. 19, Plate III), and splashy shell markings of Olive Gray (no. 14, Plate II). The eggs are ovate in shape and measure as they lie in the picture $1.02 \times .69$, $1.02 \times .67$, and $.98 \times .71$ (see fig. 78).

The second nest was situated 35 feet up, eight feet from the trunk of the hemlock, and two feet from the end of the limb. It closely resembles the type

nest in construction, having a flimsy platform of small dead hemlock twigs from three to eight inches long, intermixed with a few stems of some tough wire-like shrub. On this platform rested the nest proper, of fine light-colored grasses. The whole structure is in no way fastened to the branch but simply rests on several twigs. Altho the nest can be easily seen through, in the tree it was entirely hidden, from above by the thick green foliage which hung over it only two inches away, and from below in like manner. The main branch on which the nest rests is well covered with the bright yellow moss peculiar to most trees in these altitudes. The nest measures eight inches over all, and the grassy interior is $3\frac{1}{4} \times 3\frac{1}{4} \times 1\frac{3}{4}$ inches deep.

The second set of eggs is similar to the type set except that they rather approach elongate-ovate in shape, the ground color is slightly paler and duller, and the markings lighter and less scattered, except on one specimen where they are



Fig. 78. EGGS OF THE CALIFORNIA PINE GROSBEEK; UPPER ROW TYPE SET, LOWER ROW SECOND SET; EXACTLY NATURAL SIZE

finely distributed over the entire surface. In the position shown (fig. 78) they measure in inches 1.02x.68, 1.00x.68, and 1.06x.68.

It may be of some interest to compare the rarity and difficulty of securing the type set of eggs of the Gray-crowned Leucosticte, or Rosy Finch, with that of the California Pine Grosbeak. The former, although inhabiting a region more difficult to reach, can usually be relied upon being found in certain localities. The Pine Grosbeak on the other hand is extremely erratic in its distribution. The habitat of the Rosy Finch along the timberless Sierran Crest is open while that of its neighbor just below is in the dense forests of a great woodland. While we saw several Rosy Finches engaged in nest building in our search of 1910 we were only able to definitely locate and reach but a single nest. On the other hand both nests of the Pine Grosbeak, while difficult to locate, were easily acces-

sible. The Rosy Finch is distributed over a wide range of country, the Pine Grosbeak over a very restricted area. The eggs of the rupicoline Rosy Finch defied a small army of searchers for 79 years; those of the arboreal Grosbeak, but a small fraction of that number, for 49 summers. From this comparison all can draw their own conclusions as to the relative rarity and to the comparative difficulty of securing the respective first sets.

The following description of the male Pine Grosbeak collected with the type set serves to show how birds in this "yellow" phase of plumage are almost, if not entirely, indistinguishable from the females in coloration: General color of body plain gray; wings and tail somewhat darker. Most of the wing feathers, both quill feathers and coverts, edged with whitish. Tail feathers edged with the same grayish shade as the body color. Top of head and cheeks coppery yellowish, this color extending in disconnected spots onto the dorsum. A small spot of the same yellowish color on the rump.

While the rich poppy red plumage of the male California Pine Grosbeak is not so conspicuous as the bright yellow of the Louisiana Tanager or Western Evening Grosbeak, it is, nevertheless, one of the most beautiful of all Sierran birds. Campers, tourists and summer residents often described the Tanager, which is a common bird in the region, asking us its identity; and sometimes, too, the Evening Grosbeak had attracted their attention. But when we, in turn, gave a description of the Pine Grosbeak scarcely anybody ever recollected seeing such a bird, and when they did we soon found they were confusing it with the very abundant Cassin Purple Finch. The resemblance to this bird is, however, only slight. The California Pine Grosbeak, both in form and flight is a rather graceful bird, for although somewhat plump in build this is equalized by the long wings and tail.

Although Price states that he saw the Pine Grosbeak usually in company with the Cassin Purple Finch and the Western Evening Grosbeak it may be of interest to note how widely experience may differ, for on no occasion have we ever seen the bird associating with any other species.

On June 20, the day after the two sets of eggs were collected, Littlejohn desiring to secure a Rosy Finch before leaving and I to investigate the nidological possibilities of the wild woodland that surrounded a certain alpine lake, started up the southeast slope of Pyramid Peak. As we ascended, we could see approaching from the west a lofty wall of huge, brownish, storm clouds extending north and south as far as the eye could reach. From previous experience in these altitudes we needed no barometer to tell us that a great storm was approaching and curtailing our trip afield as much as possible we returned to camp several hours before noon. Under the circumstances, the principal work of the trip having been accomplished, hasty preparations were made for an immediate departure; for already the sky was clouding and a gusty wind wailing along the meadows. During our absence close to the cabins Heinemann saw the last Pine Grosbeak of the year, the eighteenth bird to be recorded.

The following table gives a summary of our season's work afield. Where the same birds were seen on succeeding days their occurrence is not recorded. Although Heinemann heretofore has not engaged in ornithological work afield I have counted his mileage on the present trip, as he made it a point to familiarize himself with the Grosbeaks both by sight and song.

Leaving Forni's at 2:40 p. m. we took a very direct trail down precipitous mountain sides to Echo which we reached at 5:40 p. m., and later Phillips' at

7:15 P. M. Here the following morning, the weather clearing somewhat, we spent the forenoon in the field, recording some interesting notes on *Melospiza lincolni* and other birds. The trip ended at Bijou which was reached at dusk.

TABLE SUMMARIZING SEASON'S EXPERIENCE WITH THE CALIFORNIA PINE GROSBK

DATE	BIRDS	FOUND BY	LOCALITY COVERED	ELEV. COVER'D	MIL'GE for ALL
June 11	1	Ray	Deerington's	7000 to 7600	20
" 12	3	All	Phillips'	7250 to 6900	3
" 12	1	Littlejohn	Deerington's	6900 to 7250	7
" 13	2	Ray	Pyramid Peak Plateau	7000 to 7600	24
" 14	5	"	" " "	7250 to 8000	28
" 15	2	"	Slope of Pyramid Peak	7500 to 9250	45
" 16	1	"	Pyramid Peak Plateau	7000 to 7600	40
" 16	2	"	" " "	7250 to 7600	5
" 17	0	—	Plateau and Peak	7500 to 10,200	30
" 18	0	—	Pyramid Peak Plateau	7250 to 7600	20
" 19	0	—	" " "	7250 to 8500	45
" 20	1	Heinemann	Plateau and Peak	7000 to 8500	25
" 21	0	—	Phillips'	7000 to 7600	20
Total Birds 28				Total Mileage 312	

Next morning a wild snow-storm broke over the whole region, lasting three days and draping valleys and mountains in a wintry mantle. Littlejohn and Heinemann fled away to lower altitudes while I, lounging before the pleasant log fire in the Bijou Post Office, whiled away the time reading Whittier's "Snow Bound", while the storm raged without. At times, when the clouds lifted, I could see Pyramid Peak far distant and snowy, and I thought, with no regret, of the dreary prospect doubtless now in view from the windows of the Forni cabins.

NOTES FROM TODOS SANTOS ISLANDS

By A. B. HOWELL

TODOS SANTOS consists of two main islands a hundred yards apart. The southernmost one is the larger, being a mile and a quarter long, half a mile wide, and three hundred and thirteen feet high, while the one towards the north is but half a mile long, a quarter of a mile wide, and fifty-five feet high. They are surrounded by numerous small outlying rocks and beds of kelp, and are in general similar to the smaller islands off the southern California coast, being almost barren of vegetation. They are opposite Ensenada Bay, and although but three miles from Banda Point, a narrow rocky headland jutting out to sea, they are some ten miles from the general coastline. Because of their proximity to the mainland, one would not expect to find a large variety of unusual stragglers which have become lost in migration, as is the case on the Farallones for instance, and the avian visitors seem to consist of prosaic migrants that are to be found in abundance farther north.

My visit to the islands was from April 15 to 20, 1910, too short a time to be able to record a long list of species, but some few interesting things were noted.

As far as I could discover there were no cats or foxes on the islands, and the rats can increase and multiply almost indefinitely. The place is alive with them,

and still more so with fleas, making a stay in the locality a perfect nightmare. One has but to stand still for a moment and upon looking down, dozens of the little pests are to be seen crawling up one's legs.

A number of Cassin Auklets (*Ptychoramphus aleuticus*) and a specimen each of Xantus Murrelet (*Brachryamphus hypoleucus*) and Black Petrel (*Oceanodroma melania*) were seen on the way from Ensenada. I searched diligently for nests of the two former species, and was convinced at the time that no small sea-birds bred upon the islands because of the plague of rats, but on April 25, 1912, Mr. George Willett found several nests of Cassin Auklets, which proved that they do breed there in limited numbers.

Larus occidentalis. Western Gull. These had finished the construction of their nests in several small, well-defined colonies, and were jealously guarding them, either singly or in pairs, from the thievery of their neighbors, but no eggs had been laid when I left.

Larus heermanni. Heermann Gull. A few seen.

Sterna maxima. Royal Tern. Two noted.

Puffinus griseus. Sooty Shearwater. As we were steaming past the islands down the coast April 12, vast flocks of what I took to be this species were seen flying half a mile out to sea.

Phalacrocorax auritus albociliatus. Farallon Cormorant. Nests of this bird and the pelican were commingled in two colonies on the south island. Only a very few birds visited the rookery during the first two days of my stay, but by the last day flocks of them were coming in from the sea, and standing about the old nests; and an individual could occasionally be seen carrying seaweed.

Phalacrocorax penicillatus. Brandt Cormorant. Many old nests were located in the niches of the low cliff along the shore, and the birds were common on the surf-washed rocks, but they showed no signs of breeding yet. On a rock twenty miles farther south some of these birds had eggs.

Pelecanus californicus. California Brown Pelican. A few of these also were to be found inspecting the old nests, but here at least no eggs had been deposited. On the farther end of the north island, however, there was a very large colony, as could be seen by the birds in the air. The fishermen informed me that the pelicans had eggs there at this date. I wish to describe here the actions of a flock of these birds, evidently from Todos Santos, which I witnessed April 13 some fifteen miles down the coast. I saw the same thing several times during 1910, but to a less marked degree. Having done no work on any of the islands during the fall I am unable to state whether this is a form of nuptial or courtship flight, but should judge this to be the case. At four o'clock I noted a very large flock of pelicans feeding, and shortly afterwards the school of fish which they were pursuing left. Some of the birds settled down upon the water while others began circling in the air on motionless wings. A moderate breeze was blowing. Singly the ones in the water took wing and joined the circling throng until there must have been a hundred and fifty birds in the air, forming an irregular but clearly defined column or rather cylinder, some hundred yards in diameter. Gradually some birds mounted higher until they were specks in the sky, while others were but fifty yards above the water. More than an hour elapsed between the start and finish of this flight. The flock remained over almost the same spot, and at no time did a bird show indications of diving or looking for fish. Their soaring was very even, and I noticed no flapping at

all after a bird was fairly launched. Slowly, as darkness approached, the pelicans left towards the north, singly or in twos and threes.

Heteractitis incanus. Wandering Tattler. Lone birds were rather common.

Arenaria melanocephala. Black Turnstone. Present in small flocks.

Haematopus frazari. Frazar Oystercatcher. Rather common and found usually together with the following in small flocks of from two to six individuals.

Haematopus bachmani. Black Oystercatcher. Outnumbering the last about two to one. April 13 I met one of these birds flying north some six miles from the coast.

Haliaeetus leucocephalus. There was a nest of this species, as there has been for a great many years, part way up a cliff with very much of an overhang at the top. As far as I can ascertain no one has ever been able to see the inside of this nest. It probably contained eggs at this date, but I was told that a taxidermist who had visited the islands the week before had killed one bird and wounded the other.

Falco peregrinus anatum. Duck Hawk. The resident pair did not seem to hunt in the immediate vicinity, but when foraging for food one would start out over the sea towards the northeast and be away about an hour and a half before returning with what I took to be a Cassin Auklet. This fact is another indication that no small pelagic birds breed here, for if such had been the case, the falcons would have done more patient waiting on the commanding promontories, as I have seen them do in other localities where the auklets breed. I found the nest of this pair April 16, situated on a "sugar loaf" three hundred feet above the sea. The four eggs, incubated two thirds, were placed in a small hollow formed by the birds, in the soil of a deep ledge, with no protection from above. The ascent was not by any means easy but was negotiated without the aid of a rope. This was the most graceful and fearless pair of Duck Hawks that I have ever seen. They paid not the slightest attention to me, in plain view below the nest, but when I approached with evil intent began tactics that made me thankful for my hat. Although they actually only brushed my head with their wings, this was enough, as both hands and feet were occupied in climbing. I watched one bird return to the nest with food on several occasions, and each time its mate flew to meet it with a great outcry, turning belly upwards in mid-flight to receive the food, too lightly and gracefully for description. Twice she let the morsel drop, purposely, I am convinced, tumbling and diving after it to recover herself and her meal fifty feet above the water. Again I saw one go headlong into a slow-moving flock of gulls just for the fun of surprising them, only to flee, shrilly screaming in mock fright before a pursuing *Larus*.

Pandion haliaetus carolinensis. Osprey. But one pair of these birds were present, in possession of one of the five old nests. One of the birds was usually to be seen perched on the edge of the nest, but no eggs had as yet been deposited. Intermittently for several weeks preceding and succeeding this time, I was visiting points along the coast from twenty miles above to thirty miles below Ensenada. In all I stopped at fifteen different places, making four round trips, and, in our boat, skirting within a couple of hundred yards of the shore between points. Several dozen old nests were encountered within this territory but not a single bird of this species did I see, with the exception of the above pair. I cannot account for this in any way, for the old nests prove that they were abundant at no distant date, and they are now subject to no more persecution than

ten or even fifty years ago, as most of this stretch of coast is not only uninhabited but almost entirely unvisited.

***Aluco pratincola*.** Barn Owl. April 16 I found a nest in a deep cleft of the rocks, twenty feet above the sea, which contained a single nestling two-thirds grown. This site was newly occupied, but on a ledge four feet above the floor of a cave on the higher ground was a nest that must have been used for generations. Beneath it was a pile of refuse and pellets two or three feet high.

***Colaptes cafer collaris*.** Red-shafted Flicker. One of these birds was making himself very much at home on the hillsides. As there was no tree or bush higher than four feet upon this island, he seemed rather out of place. Either this bird or another one must have been here the year before, as there was a weather-worn feather in an Osprey's nest that showed no signs of having been repaired recently.

***Phalaenoptilus nuttalli californicus*.** Dusky Poorwill. A single bird was flushed twice during the bright part of the day. Not seen or heard at dusk.

***Aëronautes melanoleucus*.** White-throated Swift. Along the backbone of the island were a number darting to and fro.

***Calypte anna*.** Anna Hummingbird. Several seen.

***Selasphorus rufus*.** Rufous Hummingbird. A single *Selasphorus* permitted a close enough view for me to be fairly sure that it was this form.

***Tyrannus verticalis*.** Arkansas Kingbird. Two pairs had staked off their claims and were standing guard to keep off intruders. They showed every indication of intending to remain and raise a family in some scrubby brush later on.

***Sayornis nigricans*.** Black Phoebe. A pair was seen daily about a rocky strip near the shore.

***Myiochanes richardsoni*.** Western Wood Pewee. One of these birds, looking very much out of place, was seen on the eighteenth.

***Corvus corax sinuatus*.** Raven. Several of these kept vigilant watch over camp. Occasionally they could be seen surreptitiously sneaking into certain holes along the cliff.

***Carpodacus mexicanus clementis*.** San Clemente House Finch. This species presented a rather interesting problem. On the northern end of the south island nesting was far advanced. Only a couple of nests were found containing eggs, these almost on the point of hatching, while perhaps a dozen were found with young in all stages, the oldest of which flew out of the nest when I became too familiar. On the southern end, fresh eggs and incomplete sets were the rule, no young at all being noted. The difference was most pronounced and exactly contrary to what one would be led to expect, for at the northern end the slope was northwest, facing the cold winds and getting the full sweep of the sea fogs, while the other end was sheltered and comparatively warm, facing toward the southeast. The majority of nests were in cholla cactuses, but a few pairs had set up housekeeping in suitable crannies among the rocks.

***Passerculus rostratus*.** Large-billed Sparrow. One or two individuals seen. Evidently the rear guard of the general migration.

***Zonotrichia leucophrys gambeli*.** Gambel Sparrow. Several birds present.

***Melospiza melodia* subsp.** Song Sparrow. The only specimen secured was destroyed by the rats. Song sparrows seem never to have been noted on any of the islands south of Los Coronados. If this bird was a resident, as I believe was the case, it was probably *clementae*, but it may have been a visitor from the mainland.

Hirundo erythrogastra. Barn Swallow. Quite a colony seemed to be contemplating settling down for the season in one of the caves along the shore.

Vermivora celata sordida. Dusky Warbler. This was the commonest bird on the island but was remarkably wild; so much so that the only way I could get one was on the wing. Owing to the lack of suitable bushes and small trees, they seemed to confine their nesting operations to a vine resembling a clematis, that grows over vegetation a couple of feet high. From a nest in this growth I flushed a bird by almost stepping on it. The four fresh eggs were in a dainty cup built of a silvery lichen that grows on almost everything in sight. The structure was lined with finer pieces of the same sort of lichens, making one of the most beautiful nests I have ever seen. Although I spent many hours tramping all over the island, the birds failed to reveal even the approximate location of another nest.

Salpinctes obsoletus. Rock Wren. Two pairs of these birds had selected nesting sites, and were not only anxious to let the whole world know it, but were willing to show the exact spot to anyone interested.

Sialia mexicana occidentalis. Western Bluebird. A pair appeared near camp on the nineteenth but were not present afterwards.

SOME BIRDS OF THE SAW-TOOTH MOUNTAINS, IDAHO

By STANLEY G. JEWETT

DURING the fall of 1910 I was sent into the Saw-tooth Mountains of Idaho to do some zoological collecting. I arrived at Ketchum on October 24 and left the mountains on December 20, after working at Ketchum in the Wood River Valley, and at the Boston Mine near the source of Rook's Creek. Side trips were made to the sources of Warm Spring and Baker Creeks, up to 9000 feet elevation. Wood River Valley at Ketchum is bordered with groves of aspens and cottonwoods alternating with extended thickets of willow. A few miles above the town the valley closes up to a narrow canyon with steep slopes on either side clothed with a heavy forest of Douglas spruce and Murray pine. In the vicinity of the Boston Mine on Rook's Creek most of the southern slopes are bare of forest trees, but clothed with a thick carpet of grass and sage-brush (*Artemisia tridentata*), while the northern slopes and canyons are well covered by such forest trees as Douglas spruce, Murray pine and lodge pole pine. This entire region is in the Saw-tooth National Forest Reserve, and is used for sheep grazing from July until September. The summer climate is delightful but frosts occur irregularly throughout the year, so no attempt at farming is made. Wood River and all its tributaries are well stocked with trout, and deer, bear and goat are fairly plentiful a few miles back from Ketchum. At the time of my arrival, October 24, most of the summer migrants, both birds and sportsmen, had left for warmer climates so the following list includes only what I believe to be winter residents, with the exception of one Western Robin (*P. m. propinquus*) seen October 27 at Ketchum.

Anas platyrhynchos. First seen on November 30; then common during December. Along Wood River several warm springs keep the ice thawed out in small

sloughs, and various water plants remain green throughout the winter. In such of these places as are well sheltered by thickets of willows, Mallards were usually found in flocks of from two or three to a dozen. Coyotes, lynxes and mink prey on these winter birds, and, with the long cold winter, it's a wonder any survive.

Gallinago delicata. During December several of this species were seen and two taken along Wood River. They keep close to the open spring holes feeding under the overhanging mud banks.

Dendragapus obscurus richardsoni. Common throughout this entire range. In Idaho this species nests in the lower foothills, mostly in the open sage-covered areas, and often several miles from the timber. As soon as the young begin to fly they start moving higher up the mountains, and by the time snow comes are all well up on the ridges. During October I flushed several small flocks along Spring Creek at about 6500 feet elevation, but not a single bird could be found there two weeks later. On Boyle Mountain, at 8000 feet, November 5, I saw at least one hundred individuals in a single flock, and during December I found them common on the pine covered ridges at from 7000 to 8000 feet.

Canachites franklini. This species is found in the Hudsonian Zone near the head of Wood River and on the higher ridges along Baker Creek. I did not find a single specimen myself but an old trapper, Mr. Zanchie, with whom I hunted in November, has killed several on Baker Creek. Known all over Idaho as "Fcol Hen."

Accipiter velox. A single example seen near Ketchum on November 13.

Buteo swainsoni. Common throughout all the region I covered. Several were caught in steel traps set for mink along Rook's Creek. On October 31 I flushed one from the thick willows on Spring Creek where it had killed a Richardson Grouse and was in the act of making a meal. A charge of no. 8 shot stopped any more such killings and added another specimen to my list.

Aquila chrysaetos. A single bird seen October 29 near Ketchum, hunting rabbits over the sage plains. I saw no more in the mountains but was told that several pairs breed along Spring Creek. I saw a nest on a high cliff on Baker Creek, where Mr. Zanchie, a trapper, told me a pair nested during the summer of 1910.

Bubo virginianus pallescens. Fairly common throughout the timbered sections. I heard the call of this species very often during my trip, and one was collected on Wood River November 21.

Ceryle alcyon. Several seen along Wood River during November and December. A telephone wire across the river a few miles below Ketchum was a favorite perch for one of these fishermen. I have seen them dive into the icy water when the thermometer registered zero.

Dryobates villosus monticola. Common along the various streams in the spruce forests, but not seen in the cottonwoods along Wood River.

Dryobates pubescens medianus. Common in the aspen and cottonwood thickets along Wood River, but not seen in the spruce forests anywhere in the mountains.

Picoides americanus dorsalis. Only three seen, all in the Hudsonian Zone. One taken November 3 at about 7500 feet.

Phloeotomus pileatus abieticola. Fairly common in the forests along Spring Creek. They keep well up on the ridges and are seldom seen in the canyons.

Pica pica hudsonia. Common in the mountains about all mines and

camp. At the Boston Mine several Magpies were seen about the hog pen every day. Several were caught in meat-baited traps set for flying squirrels.

Perisoreus canadensis capitalis. Not common. One taken November 3 at the hog pen of the Boston Mine, where it had come to steal scraps from the hogs, and one shot on Boyle Mountain, November 5.

Cyanicitta stelleri annectens. Several were seen along Rook's Creek, and they were regular visitors to the hog pen at the Boston Mine. None recorded from Wood River Valley.

Nucifraga columbiana. Common everywhere throughout the range. Often a dozen were seen during a few hours tramp, both in the spruce timber on the mountains and along Wood River in the cottonwoods. They, in company with the Magpies, were daily visitors to the Boston Mine, feeding on scraps of meat stolen from the hog pen. On November 10 I hid in a thicket of pine on Boyle Mountain and "squeaked" up four Nutcrackers within a few feet of me. They were very anxious to learn where the noise came from, and I kept them around for half an hour before one of them located me; then with harsh cries the four left the neighborhood without a moment's hesitation. Several were caught in meat-baited traps set for flying squirrels and weasels at 8000 feet elevation.

Pinicola enucleator montana. First seen November 2, on a high wind swept ridge above Baker Creek; then becoming more common until December 10. During December several were taken in the willow thickets along Wood River at 6000 feet elevation.

Carpodacus cassini. Observed several on Spring Creek trail west of Ketchum, October 27.

Loxia curvirostra minor. Common in the pine and spruce belt all over the range, where they were feeding on seeds of coniferous trees. Several large flocks were seen on the high ridges above Baker Creek during November.

Loxia leucoptera. A single example secured November 6 in company with a large flock of *L. c. minor*, on Rook's Creek at 7000 feet elevation.

Acanthis linaria linaria. Only one seen. On November 16, during a heavy snow storm, an adult male of this species came to the camp yard at the Boston Mine and fed about the stables for some time.

Junco hyemalis connectens. Common along Spring Creek on October 27. As the snow grew deeper this species moved down Wood River to the vicinity of Hailey, at about 5500 feet elevation.

Melospiza melodia montana. Several seen along Wood River in December. They frequent the warm spring flats, and get an abundance of insect food from the muddy ground. Often seen feeding in the shallow water, while on all sides the snow was piled four feet deep.

Passer domesticus. A small flock stayed about the stage barn at Ketchum all the time I was there. Mr. Baxter, the hotel-keeper, told me that several were found frozen on his porch during the winter of 1909.

Bombycilla garrula. First seen November 9, when, during a thick snow-storm, I took a male on Rook's Creek, at 7000 feet. On November 22 I saw a flock of eighteen in the town of Hailey, on Wood River. They were feeding on dried and frozen apples that were still on the trees.

Lanius borealis. A single example seen on Rook's Creek November 13.

Cinclus mexicanus unicolor. Common on all the streams throughout the range, a dozen or more staying below the warm springs in Spring Creek during December. Several times as I made my way through the willows on snow-shoes,

muffled to the ears to keep out the biting frost of zero weather, I have heard this little fellow's beautiful ringing song above the roar of the icy waters.

***Certhia familiaris montana*.** A few seen in the pine and spruce belt, but nowise common. One taken on Rook's Creek, 7500 feet, November 3.

***Sitta carolinensis nelsoni*.** Seen occasionally through the Canadian and Hudsonian zones, but not common.

***Sitta canadensis*.** Common wherever spruce and pine timber is found, usually in company with *Penthestes gambeli gambeli*.

***Penthestes atricapillus septentrionalis*.** Common along Wood River in the willow and aspen thickets, but never seen in the coniferous belt.

***Penthestes gambeli gambeli*.** This and the next species were the most common birds in any part of the mountains, outnumbering all other species three to one. On October 31 I was on Boyle Mountain at about 8000 feet elevation, and I spent about an hour with a flock of this species that numbered well over one hundred individuals.

***Regulus satrapa olivaceus*.** Common everywhere in suitable forests. It was a pleasing sight to see these little mites searching the trunk and inner branches of the spruce trees that were laden to the breaking point with snow. They appeared all unmindful of the intense cold.

***Planesticus migratorius propinquus*.** A single individual seen along Spring Creek October 27.

FROM FIELD AND STUDY

Breeding of the Band-tailed Pigeon in Marin County, California.—While never resident, the Band-tailed Pigeon (*Columba f. fasciata*) was formerly intermittently abundant in portions of Marin County, California. Sometimes it appeared in flocks of a hundred or so in the fall or winter when food conditions seemed to attract them, and was usually quite numerous in the spring and summer. The birds would then be in evidence from April to July, and might be seen picking up stray kernels in the fields just planted with forage corn. Or, later, when elder berries were ripe they would come in small flocks and feed in the tops of the elder bushes. It seemed as if they must have bred here in those days, yet with all the deer hunting, range riding and deliberate searching for nests we never had any actual evidence of this, excepting once, when a bird was seen carrying material for a nest into a fir forest, though the nest was not discovered.

This pigeon is becoming scarcer all the time, and, while an occasional small flock is seen in this neighborhood, it never appears in such numbers as it did thirty, or even twenty years ago, and hence it seems singular that the first breeding record for this locality should have been made only this summer, when but few are left in evidence. This record was made purely by accident, the bird having been flushed from its nest when the writer was surveying a line through a forest of second-growth timber on a steep hillside at Lagunitas, near San Geronimo, Marin County, on July 30, 1912.

The nest, of small twigs loosely laid together and closely resembling that of a Mourning Dove, though naturally a little larger, was on an overhanging branch of a California lilac (*Ceanothus thyrsiflorus*) extending over a steep rocky place that was rather more open than the immediate neighborhood. The nest was about eight feet from the ground. The single egg it contained was in an advanced state of incubation, the embryo being probably within three days of breaking the shell.

At times the Band-tailed Pigeon, possibly on account of unfavorable food conditions in its natural haunts, gathers in large flocks in certain localities, and it then falls an easy victim to the hunter. Possibly also there are localities where it breeds in numbers and may easily be shot. Be this as it may, this fine bird is certainly and surely being destroyed faster than it breeds, and it is high time that it should be given some sort of protection, and listed with game birds.—JOSEPH MAILLIARD.

Some 1912 Spring Notes from Southern California.—*Mycteria americana*. Wood Ibis. On May 18 I saw a single bird of this species feeding in a small pond within a hun-

dred feet of a house in the outskirts of Los Angeles. I believe this is the earliest recorded date of the occurrence of this species in this section in the spring.

Zonotrichia leucophrys gambeli. Gambel Sparrow. Guy C. Rich saw an adult bird of this species at Hollywood, Los Angeles County, May 14.

Piranga ludoviciana. Western Tanager. This bird, always more or less irregular in its movements in this locality, has appeared in the coast district of southern California this spring in unusual numbers and remained considerably later than usual. Antonin Jay noted them daily in his garden in Los Angeles from early April until May 17 and saw a single adult male in the same locality as late as May 21. J. E. Law found them plentiful at Hollywood until May 14 and Guy C. Rich saw a pair in the same vicinity May 19. In a Los Angeles daily paper dated May 13, the correspondent from Ventura notes the abundance of the species in Ventura and vicinity.

Dendroica townsendi. Townsend Warbler. Unusually plentiful in migration this spring. I found it common near Newport, Orange County, May 12, and Antonin Jay found it plentiful in the willow regions near El Monte, Los Angeles County, as late as May 18.—G. WILLETT.



Fig. 79. NEST AND EGGS OF SCOTT SPARROW; HUACHUCA MOUNTAINS, ARIZONA

Breeding of the Scott Sparrow.—The mountains of Cochise County, Arizona, are inhabited by very few species of the sparrow family. The fingers of one hand would number them all.

The Scott Sparrow (*Aimophila ruficeps scotti*) is the most common one found really up in the mountains, aside from the Arizona Junco (*Junco phaeonotus palliatus*). These birds are rarely found above 6800 feet altitude, overlapping the zone occupied by the junco, which extends down to about 5800 feet; and are most common on the scantily covered lower ridges and foothills, where scattering oaks, madrona, and scrubby mountain mahogany are the only trees, together with plenty of bear grass and mescal plants. They much prefer slopes with a southerly exposure.

During May, their scolding notes and poor little song are to be heard constantly, when one is in the right localities. The birds keep pretty well out of sight, but if the observer will sit down and keep quiet, he will hear the leaves rustle and, by watching, presently see one hopping along, in and out among the bunches of grass and dead brush. At such times they may be seen chasing one another about like a pair of Canyon Towhees, uttering a similar chattering note.

Fresh eggs may be looked for after the 20th of May though some pairs breed much earlier. I found one nest containing three newly hatched young May 25. The young did not appear to be over a day or two old, yet I heard them cheeping at a distance of about a rod, and by following the sound, located the nest.

No amount of watching on my part has ever enabled me to locate a nest being built. I have found a number of occupied nests, but it has always been by flushing the bird as I passed close by. The first week of June is the height of the nesting season. The male sings quite continuously in the vicinity of the nest. The latter is built of grass and lined with fine grass, closely resembling the nest of the Arizona Junco, but better built. The eggs are pure white, usually three in number. They are slightly smaller than the eggs of the Junco, and can be distinguished from immaculate specimens of the latter by this difference in size, and by the fact that they show no trace of a blue shading as Juncos' eggs always do.

When flushed from the nest the bird flies silently away, close to the ground, until the shelter of a bush is reached. Then she begins to scold vigorously but does not come back near the nest. When the young begin to fly, both parents are kept busy supplying them with food, which they demand most vociferously. At this time both the adults are very solicitous and set up a terrible scolding if the young are approached at all closely. The nest is carefully concealed under a rock overhung with dead grass, or under the leaves of a mescal plant. The nest, of which a photograph accompanies this article (see fig. 79), was found May 24, 1907, and is typical in every respect. Incubation was advanced.—F. C. WILLARD.

White-winged Dove in the San Diegan District.—I have recently examined a mounted specimen of the White-winged Dove (*Melopelia asiatica trudeaui*) in the possession of Mr. John Johnson, Jr., of Escondido. The bird was shot at a point not over five miles from the Pacific Ocean, at an elevation of about 200 feet. The locality is about ten miles due west from Escondido in an air line.

I am inclined to think that the specimen is a bird-of-the-year, as there is a rusty tinge at the tips of the feathers. It was in company with Mourning Doves, but seemed to feel out of place.

As to the date of capture, Mr. Johnson said it was three weeks before the quail season opened last year (1911). That would bring it about September 25.—JOSEPH DIXON.

Paroquet Auklet in Humboldt County.—Buzz-z-z-z-z—Bang! Was the way one Andy Aiton described the first appearance of this little auklet. It was about 8 o'clock in the evening of February 7, 1909, near the corner of First and E Streets, Eureka, California. Mr. Aiton was standing on the street in front of his barber-shop, when a whirl of wings and a sharp crack, was followed by the dropping of a Paroquet Auklet (*Cyclorhynchus psittaculus*) to the street from above.

It was a dark stormy night; the drizzling rain growing into a dense fog, with a strong wind blowing, turned the night into a dreary haze. The auklet was evidently lost, and, probably attracted by the street lights, flew blindly against an overhead telephone wire, thereby stunning itself and causing it to fall to the street below. On picking it up, Mr. Aiton found the bird alive.

He gave the bird to a local taxidermist, who after skinning it, failed to ascertain the sex. I secured the skin in its fresh state and afterwards turned it over to Mr. F. J. Smith, in whose mounted collection it was placed.

This is probably the second record and the sixth specimen, of the rare little Paroquet Auklet for the state of California.—C. I. CLAY.

An Elevated Camp.—Last spring I wanted to lead the simple life close to nature by camping out, and built the usual camp on the ground, but hogs and cattle, besides skunks and rattlesnakes, run free about here. The accompanying photo shows the alternative chosen in preference to building a fence around the tent; and such a camp has several advantages over the ground camp. The platform, if anything, is easier built than a "hog-tight" fence, as is usually done here; I never heard of a "skunk-tight" fence being attempted. Possibly the yarns about skunks are stretched, as they never bothered me. If food is not dropped on the ground, rats and mice are much less troublesome, as they apparently do not climb oak trees in search of food; and ants are entirely eliminated by painting a ring of kerosene, or smearing pitch around the main poles between tent and points of support. The platform is about eight by sixteen feet.

The available dry space is more than doubled, and I have shelves and a punching bag on the "first floor", and considerable chemical apparatus to occupy my time profitably dur-

ing stormy weather. A pyramid miners' tent covering a space of six and one half by seven feet was found to give plenty of room for all purposes. The floor is of boards and has a trap door, so that wet coat and hat may be removed below and left there, the tent being entered by a ladder. We had a snow storm just after putting this up, and it was very much less damp, and with better ventilation than any ground camp I have occupied, as the snow fell away, instead of piling up around the tent.

A brush fence is often built around tents here, but in hot weather this increases the heat, besides causing danger from fire. My camp was safe and very comfortable in the hottest weather, as the brush was cut and burned for fifty feet all around, making it practically fire-proof.

It has caused more or less local comment, one remark being that it must be tiresome to live in such a small space, which of course cannot cause anything but a smile from a field ornithologist. The weather here is mostly fine, if windy, so that I have "all out of doors" to live in. I simply sleep and occasionally work in the tent, the "kitchen" being at a little distance and roofed over with boards.

The wildest available locality was selected, my judgment of the place being confirmed by a pair of Pileated Woodpeckers raising their brood nearby. The nest was certainly not



Fig. 80. AERIAL CAMP IN THE WOODS OF SOUTHERN OREGON,
AS CONTRIVED BY C. W. BOWLES

more than 200 yards away, yet I was never able to catch them going to it. They seemed to take special delight in parading their young in Indian file, on all the trees around my camp, as often on the trees supporting it as anywhere else. From May 15 to 20 seems to be about the best time for nearly fresh eggs in this latitude.

The camp was in a stretch of heavy oak, fir and pine timber one mile long and a half mile wide, on a level bench near a steep bank, about fifty feet high, at the foot of which are the Illinois River and a large swamp covered with pines, cottonwoods and brush. Monotony at night was dispelled by all kinds of noises, great horned, screech and pigmy owls being conspicuous, but there seemed to be only one pair each of the first and last named.

Late in the summer what were probably a pair of long ears (had a glimpse of one in daylight) kept up their cries for hours at a time. It seemed like the harsh grinding of the brake on a heavy cart wheel going down hill, but was in single, monotonous notes, about every forty to sixty seconds, and sounded like "creak—creak—creak", ad lib., as the doctors say. The pigmys at first started calling pretty much anywhere in the neighborhood, but finally the sound started every evening from about the same place for one of each series of

notes. One, probably the male's, was a very high pitched staccato affair, and the other similar but much lower, softer and more liquid. The soft notes finally started in one place about 200 yards away, but for some reason this fact did not dawn on me until it was too late to see if a nest might be located by waiting every evening nearer and nearer to the apparent location. The other bird appeared to roost in one place most of the time, but not always, and much farther off. Both were in the heavy timber away from the open stretches.

High up on the Big Elder Trail, leading from Waldo, Oregon, to Althouse Creek, another owl was heard, apparently not a variation of the great horned owl's call, although it must have been a large owl. The notes were "Hoot—hoot—toot—hoo-oo-o-o-o". The long dashes represent pauses of fully two seconds each, the first three notes being very short and sharp, while the last was prolonged for about a second, making each song (?) last about five seconds. This was the regular call and never varied on the two or three occasions that I passed there at night.

In the dark I traveled by feeling the trail with my feet in the inky darkness of the big fir timber; it is curious that it is possible to walk quite fast that way, the ground on each side of the trail being so much softer in the woods and rougher in rocky places, that the difference is instantly noticeable to the feet if the trail is left.

Several pairs of Hermit Thrushes kept the "desolate woods" anything but desolate around my camp during the day, but I have never yet heard a Willow Thrush—that is if the note is anything like the Wilson Thrush. Capen describes this as being like the sound made when a marble is rolled around in a big iron kettle, which seems to me not a bad description, as, although the sound varies, it lacks the sharp change of other thrush notes that I have heard. Hermit and Black-throated Gray warblers were also conspicuous neighbors around my camp, but most of the birds of this section prefer more open country.

Hummingbirds also nest in the big timber, probably more often than anywhere else, judging from the number of males, although I have found only three nests. One was about one hundred feet from my tent, forty feet from the ground in one of the largest firs; it was about twenty feet out on a small twig and beneath a large branch. Males killed by a cat in Kerby were Rufous, making it probable that the nest near camp belonged to that species although the male was not seen during the whole season. The special attraction of the neighborhood to the female was the large pile of ashes left from the brush I had burned. Apparently she came at least five times every day throughout the nesting season, as I was seldom at camp without at least one visit. On each occasion she would dip down into the ashes five or six times and pick up a mouthful, once about six feet from me. Apparently it was ashes she wanted and not small specks of charcoal. I was sorely tempted to shoot her

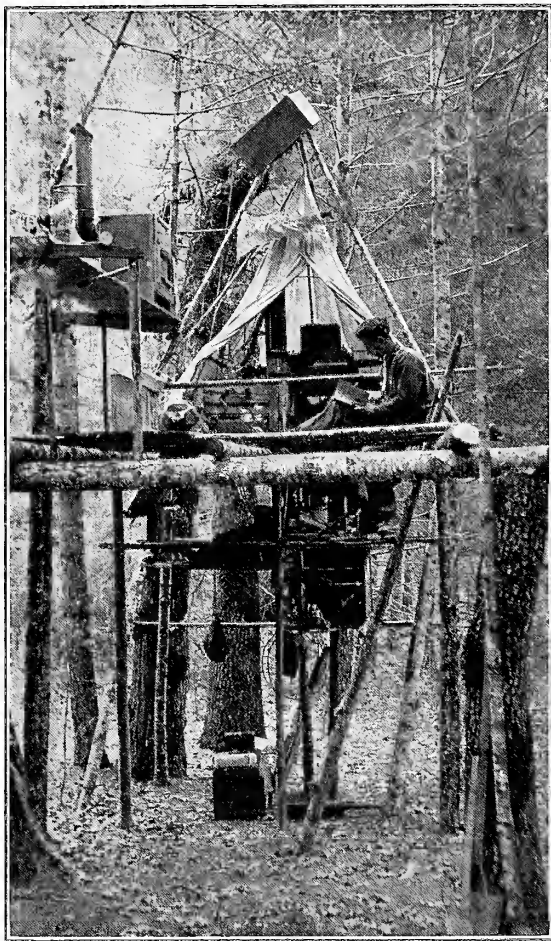


Fig. 81. C. W. BOWLES' CAMP AT KERBY, OREGON, IN SUMMER, SHOWING DETAILED CONSTRUCTION

to settle this point. At each dive, the suggestion of a violent tornado in miniature, as shown by the dust of the ashes, was very striking.—CHARLES W. BOWLES.

Egrets in California.—As the total extinction of the Egret (*Herodias egretta*) and the Snowy Egret (*Egretta caudidissima candidissima*) has been prophesied, the following records should be of interest. A trip into the marsh lands southeast of Los Banos, Merced County, California, on July 11, 1912, revealed the fact that these two birds still exist in small numbers in this state.

A flock of seventeen egrets was first noted. The birds were first seen quietly standing about in an open marshy field. On nearer approach they took flight and were seen to settle down in a field some distance away. Later, a lone Snowy Egret was seen wading about in water about a foot deep. Still later in the day, three Egrets and two Snowy Egrets were seen feeding together. The aigrettes, the valuable feathers which caused the near extinction of these birds, could be seen. In no case would the large egrets permit one to approach nearer than a quarter of a mile. The lone Snowy Egret was approached within a distance of a hundred and fifty yards.

The Fulvous Tree-duck (*Dendrocygna bicolor*) was the bird most abundant in the locality. Other water and shore birds noted were: Pied-billed Grebe (*Podilymbus podiceps*), Forster Tern (*Sterna forsteri*), Black Tern (*Hydrochelidon nigra surinamensis*), Ruddy Duck (*Erismatura jamaicensis*), Bittern (*Botaurus lentiginosus*), Least Bittern (*Ixobrychus exilis*), Great Blue Heron (*Ardea herodias herodias*), Anthony Green Heron (*Butorides virescens anthonyi*), Florida Gallinule (*Gallinula galeata*), Coot (*Fulica americana*), Avocet (*Recurvirostra americana*), Black-necked Stilt (*Himantopus mexicanus*), and Killdeer (*Oxyechus vociferus*).

A Great Blue Heron picked up beneath the wires of an electric power line, where it had evidently accidentally killed itself, furnished abundant evidence as to the economic value of this bird. The stomach of this particular individual contained two large gophers (*Thomomys angularis*), still undigested. Considering the time of digestion one would naturally infer from this, that these birds must need a minimum daily food supply of an equivalent of two gophers. A complete knowledge as to the average number of gophers taken by one of these birds in a day would furnish interesting evidence as to their money value to the rancher. The patience displayed by one of these birds as it watches a gopher hole in an alfalfa field, and the cleverness shown in catching the rodent when it puts in an appearance, have become topics of conversation by many observing ranchers of the state.—H. C. BRYANT.

Blue Jay Imitating Song of Brown Thrasher.—On July 4, a hot, sultry day, while seated near an open window, a Blue Jay (*Cyanocitta cristata*) was seen to alight on a bush within twenty feet, and was observed to sing softly a song distinctly resembling that of the Brown Thrasher. Dr. Craig Thoms and I both saw its throat moving as it sang and have not the slightest doubt as to the source of the notes. It was softer and lacked the "ring" but was almost as pretty a song as the Brown Thrasher's own.

Dr. Thoms relates that some ten years ago on a similar hot afternoon in Des Moines, Iowa, he saw and heard a Blue Jay sing just outside of an open window. That time, though, the song was brief and didn't distinctly suggest that of any other common species.—S. S. VISHNER.

The Northern Brown Towhee.—In 1899, Richard C. McGregor (Bull. Cooper Orn. Club 1, page 11) gave the name *Pipilo fuscus carolae* to what he at the time regarded as a separable form of the brown towhee from northern California (type from Battle Creek, Shasta County); and the name was adopted by the A. O. U. Committee. Subsequently several writers, including McGregor himself, expressed doubt as to the reality of the assigned characters, and the name was dropped from the A. O. U. List.

Some material has lately come into the California Museum of Vertebrate Zoology, which seems to me to establish adequate grounds for reinstating *carolae* as a valid subspecies. The material representing *carolae* is as follows: Kerby, Josephine County, Oregon, two (nos. 17201, 17202); California: Helena, Trinity County, one (no. 17359); Tower House, Shasta County, two (nos. 17360-17361); Tehama, Tehama County, ten (nos. 22856, 22871-22879); Winslow, Glenn County, five (nos. 22880-22884); Chico, Butte County, two (nos. 22869, 22870); Oroville, Butte County, one (no. 22868); Marysville Buttes, Sutter County, two (nos. 22866, 22867); Carbondale, Amador County, five (nos. 22860-22864); Galt, Sacramento County, one (no. 22865).

Specimens from the latter two localities approach *Pipilo crissalis senicula*, and others, from the rim of the southern San Joaquin Valley, are best referred to that form, the known range of which is hereby extended accordingly. *Pipilo crissalis crissalis* is thus to be considered as restricted to the coast region of west-central California.

The characters separating *carolae* from *crissalis*, are slightly larger size, and paler, more slaty and less brownish, coloration. From *senicula*, *carolae* differs in decidedly larger size and deeper, slaty-brown, tones of coloration. The two skins of *carolae* from Kerby, Oregon, (presented to the Museum by Mr. Charles W. Bowles), show the extreme of large size.—J. GRINNELL.

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EDITORIAL NOTES AND NEWS

This issue is concluded with the annual "Club Roster". It shows the membership of the Cooper Ornithological Club on September 1, 1912, to be 410 in the active class, and six in the honorary class. We would be glad of information as to any errors in spelling, or changes in address, so that the Secretary's list may be perfected accordingly.

By the election of Mr. Frank Stephens to Honorary membership in the Cooper Club, just distinction has been conferred upon a man who is closely identified with the development of the ornithology of the southwest. As set forth in the Club's minutes on a subsequent page, Mr. Stephens may be fairly credited with having obtained a large part of the first information in regard to many of the birds peculiar to Arizona and southern California. This field-work was carried on, too, at a time when conditions made it far more difficult than we now can realize.

Cooper Club members will have noted with approval the new seal appearing on the title pages of Avifauna numbers 7 and 8. This design was executed and presented to the Club by the one-time editor of THE CONDOR, Mr. Walter K. Fisher, who thus registers his continued loyalty to the Club's welfare.

Mr. L. E. Wyman, of Nampa, Idaho, spent the month of June in the high mountains of central and northeastern Idaho, collecting birds and mammals for the Biological Survey.

Albert H. Frost, for some years a Cooper Club member, and always an enthusiastic de-

votee of oology, died at his home in New York City, January 27, 1912. Mr. Frost visited California in 1898, and at that time became widely and favorably known to many of the bird students on this coast.

SHALL CALIFORNIA HAVE A "NO-SALE OF AMERICAN DUCKS" LAW?

The report of an Ohio State Senate Committee for 1857, contains the following:

"The passenger pigeon needs no protection. Wonderfully prolific, having the vast forests of the North as its breeding grounds, traveling hundreds of miles in search of food, it is here today and elsewhere tomorrow, and no ordinary destruction can lessen them or be missed from the myriads that are yearly produced."

Note the following from the same report:

"The snipe needs no protection. It does not breed in Ohio, but merely tarries a while in its migration to the breeding grounds in the extreme North. The snipe, too, like the pigeon, will take care of itself, and its yearly numbers cannot be materially lessened by the gun."

After the few years which have elapsed since then, we are in a position to realize how short-sighted the American people have been in the matter of adequate and timely protection of wild life. It is furthermore clearly apparent that the reason for this lack of foresight has been the easy but erroneous belief in the inexhaustibility of our wild game. But why discuss a matter so clear to every one?

In the official "Hearings" (1912) before the United States Senate Committee on Forest Reservations and Game, to which the McLean bill providing for Federal protection of migratory birds was referred, our own Senator Perkins (California) said: "On the Pacific Coast they say game birds are *increasing*." Suggestions heard from other quarters indicate the prevailing dense ignorance concerning this important matter. Competent testimony from many points in the state has it that every game bird, with the exception of quail in certain localities, is rapidly *decreasing* in numbers.

The ducks are going down with such speed that two species, the Red-head and Wood Duck, are now facing extinction. All this while the Army of Destruction is increasing; means of rapid transit from city to hunting grounds are being perfected; shot guns are becoming continually more highly efficient killing machines; and the waste land suitable to wild life is becoming more and more restricted.

New York and Massachusetts now prohibit absolutely the sale of American-killed wild game of any kind. Shall we in California put through a law of this kind, or shall we be listed with those other states and countries in the "It might have been" column?

Every Cooper Club member should realize that the cause is one which issues a pointed challenge to every nature-lover. What can

the individual do? Become a center of information as to the present condition of our remnant of wild life, and an enthusiastic booster for more and better laws and the rigorous enforcement of those now existent.

"The wild life of today is not wholly ours, to dispose of as we please. It has been given to us *in trust*. We must account for it to those who come after us and audit our records."—W. P. TAYLOR.

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

MAY.—The May meeting of the Cooper Ornithological Club was called to order in the committee room of the Museum of History, Science and Art, with Mr. Willett in the chair and the following members present: Howell, Lamb, Willett, Antonin Jay, Alphonse Jay, Zahn, Davis, Daggett, Rich, and Miller. The following ladies were visitors: Miss Mary H. Hainline, Denver, Colorado; Mrs. A. W. Beven, Chicago, Ill., and Miss F. M. Shields, Chicago, Ill.

The chairman appointed Mr. Miller as secretary pro tem. The minutes of the April meeting were read and approved. On motion by Mr. Lamb, the secretary was instructed to cast the unanimous ballot of the club electing to membership the following applicants, as proposed at the April meeting:—Kate W. McGraw, C. W. Chamberlain, A. W. Chandler, L. K. Tevis, and Geo. Wood. The name of Mrs. Frances M. Harmon was proposed for membership in the club, the application to lie on the table till the next regular meeting of the club. The resignation of Dr. Garrett Newkirk of Pasadena was read and upon motion by Mr. Daggett was accepted. Announcement of the death of Mr. A. B. Frost was read and was referred to the secretary for publication in THE CONDOR.

Letters from Mr. W. P. Taylor of the northern division of the Club regarding protection of wild life of the state were read, and freely and favorably discussed by the club. On motion by Mr. Daggett, seconded by Mr. Lamb, the secretary of the committee on the preservation of wild life was authorized to write letters to various members of the committee in Congress having to do with federal legislation on the protection of game.

The meeting adjourned to spend a very pleasant hour under the direction of Mr. Daggett inspecting the beautiful building of the museum and the very creditable work accomplished in the short time that its energetic director has been at work. Unqualified commendation was expressed by all.—LOYE MILLER, *Secretary pro tem*.

JUNE.—The meeting of the Southern Division of the Cooper Ornithological Club was held on June 27, 1912, in the committee room of the Museum of History, Science and Art, with vice-president Leland in the chair, and the following members present: Mrs. Harmon, and Messrs. Chambers, Daggett, Fisher,

Granville, Howard, Howell, Lamb, Law, Leland, Miller, Rich, Smith, Snyder, Willett, and Zahn.

The minutes of the Southern Division for May were read and approved. Upon motion by Mr. Willett, seconded by Mr. Rich and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Mrs. Frances Harmon, proposed at the last meeting.

Applications for membership were proposed as follows: Don C. Phillips, Bakersfield, California, proposed by H. C. Bryant; R. D. Jewett, Los Angeles, proposed by G. Willett; Chas. Jeffreys, Tetbury, England, proposed by A. B. Howell; John Dryden Kuser, Bernardsville, N. J., proposed by W. Lee Chambers.

Upon motion of Mr. Willett, seconded by Mr. Chambers and duly carried, the secretary was instructed to notify the Audubon Society that the Southern Division of the Cooper Club would gladly co-operate with it in endeavoring to procure satisfactory bird legislation. After an extended discussion of bird legislation and a pleasant bird chat, the meeting adjourned and inspected the progress made in placing specimens in the new museum. The displays are beginning to show up and some of the new ideas, which Mr. Daggett as Director has introduced, will result in a very attractive exhibit. Adjourned.—J. E. LAW, *Secretary*.

JULY.—The July meeting of the Southern Division of the Cooper Ornithological Club was held on Thursday evening, July 25, 1912, in the Directors' room at the Los Angeles County Museum of History, Science and Art, with the following members present: Chambers, Daggett, Howell, Lamb, Law, Miller, and Rich, and A. W. Brauer as visitor.

Mr. Daggett was elected Chairman. The minutes of the Southern Division for June were read and approved. Messrs. Don C. Phillips, R. D. Jewett, Chas. Jeffreys and John Dryden Kuser, nominated at a previous meeting, were elected to active membership. The resignation of M. C. Blake was accepted. Applications for membership were proposed as follows: Samuel Hubbard, Jr., Oakland, Cal., proposed by A. B. Howell; Jesse J. Wood, Santa Barbara, Cal., proposed by W. Lee Chambers; Mrs. J. W. Wheeler, Seattle, Wash., proposed by J. L. Sloanaker; William A. Magee, Jr., Oakland, Cal., proposed by W. Lee Chambers.

On motion by Mr. Miller and seconded by Dr. Rich, the by-law relating to the distribution of Avifaunas was altered to read:

"The sale and distribution of Avifaunas to be left in the hands of the Business Managers, who shall establish prices for the sale of such publications. Members shall receive copies of such publications at half regular prices thus established."

A telegram to Mr. Law from the State Fish and Game Commission was read, stat-

ing that the Hearst papers were conducting a campaign against the proposed legislation for better and further game protection. Various paper clippings on the same subject were read. Mr. Law has written the State Fish and Game Commission and others, assuring them of his hearty support and co-operation in any laws that will benefit and preserve the wild life in California. On motion by Mr. Miller and seconded by Mr. Chambers, the Southern Division adopted a resolution upholding and supporting the sentiments expressed by Mr. Law. Adjourned.—CHESTER LAMB, *Secretary pro tem.*

NORTHERN DIVISION

AUGUST—The regular monthly meeting of the Northern Division was held at the Museum of Vertebrate Zoology, Berkeley, Saturday evening, August 17, with vice-president Carriger in the chair, and the following members present: Messrs. Bryant, Grinnell, Heinemann, Ray, Shelton, Stone, Swarth and Taylor. Mr. Duttke was present as a visitor. The minutes of the last (March) Northern Division meeting were read and approved, followed by the reading of the minutes of the last three Southern Division meetings. The long list of proposals for membership acted upon by the Southern Division during the past four months were read, but inasmuch as these had all been accepted by that division, it was not considered necessary to lay them over for another month for election in the Northern Division, and their acceptance was accordingly ratified at once.

The following proposal was read:

We, the undersigned, active members of the Cooper Ornithological Club, hereby propose for honorary membership in the Club, Mr. Frank Stephens of San Diego.

Our reasons for proposing this recognition of Mr. Stephens' connection with western ornithology are as follows: The candidate may be justly credited with a very large proportion of the first published information in regard to the birds of Arizona and southern California. This information was nearly all of it issued under the authorship of Brewster, Bendire, Fisher and Morcom. It was one result of untiring field work at a time when conditions made it far more difficult than we now can realize.

Furthermore, Mr. Stephens collected a large proportion of the specimens which became the basis of the first intensive systematic work on the birds of the regions named. Both specimens and facts gathered point towards a superior ability as a field naturalist.

We believe that the election of Mr. Stephens to honorary membership in the Club is only justice as an expression of appreciation of his services to western ornithology.

(Signed) JOSEPH MAILLIARD,
H. W. CARRIGER,
H. S. SWARTH,
J. GRINNELL.

The motion was enthusiastically endorsed in brief speeches by several of the members present, and was passed without a dissenting vote, subject to the approval of the Southern Division.

The Southern Division minutes contained a motion relative to the distribution of the Club's publications, but inasmuch as this departure from former methods had not been made in the manner provided by the Constitution, the Northern Division decided that it was powerless to act in the matter. The secretary was instructed to communicate with the secretary of the Southern Division, calling his attention to the irregularity of the action, and urging the impossibility of its sanction by this Division.

After the disposal of the above business, the paper of the evening was read: A Description of the Nesting of the California Pine Grosbeak, by Milton S. Ray. Specimens of the birds and eggs were on exhibition, together with numerous photographs.

Mr. Grinnell then gave a brief talk on the prospects of the Band-tailed Pigeon as a game bird. This was a summary of data gathered for the Fish and Game Commission, to aid in the drafting of suitable protective laws, and described the several peculiar phenomena in the life history of the species, which render the birds so difficult to protect. Adjourned.—H. S. SWARTH, *Secretary.*

DIRECTORY OF MEMBERS OF THE COOPER ORNITHOLOGICAL CLUB

Revised to September 1, 1912

(Residence in California unless otherwise stated. Year following address indicates date of election).

HONORARY MEMBERS

- Allen, Dr. J. A., American Museum of Natural History, New York, N. Y. 1910.
- Beal, Prof. F. E. L., Dept. of Agriculture, Washington, D. C. 1910.
- Belding, Lyman, Stockton. 1896.
- Merriam, Dr. C. Hart, 1919 16th St., Washington, D. C. 1909.
- Ridgway, Robert, 3353 18th St., N. W., Washington, D. C. 1905.
- Stephens, Frank, Box 13, R. F. D. 2, San Diego. 1912.

ACTIVE MEMBERS

- Adams, Ernest, Box 21, Clipper Gap, Placer Co. 1896.
- Alexander, Miss Annie M., Seaview and Union Aves., Piedmont. 1908.
- Allen, Arthur A., 115 Stewart Ave., Ithaca, N. Y. 1911.
- Anderson, Malcolm P., Menlo Park. 1901.
- Appleton, J. S., Simi, Ventura Co. 1901.
- Arnold, B. W., 465 State St., Albany, N. Y. 1910.

- Arnold, E., Frt. Claim Agt., Grand Trunk Ry., Montreal, Quebec. 1910.
- Arnold, Dr. Ralph, 917 Union Oil Bldg., Los Angeles. 1893.
- Arnold, Dr. W. W., 504 N. Nevada Ave., Colorado Springs, Colo. 1911.
- Atkinson, W. L., 28 E. Santa Clara St., San Jose. 1901.
- Atsatt, Miss Sara R., 1207 West 5th St., Los Angeles. 1911.
- Bailey, Bernard, Corvallis, Montana. 1911.
- Bade, Wm. Frederic, 2616 College Ave., Berkeley. 1903.
- Bailey, Florence Merriam, 1834 Kalorama Rd., Washington, D. C. 1910.
- Bailey, H. H., Box 154, Newport News, Va. 1903.
- Bailey, Vernon, 1834 Kalorama Rd., Washington, D. C. 1904.
- Bales, Dr. B. R., 151 West Main St., Circleville, Ohio. 1906.
- Bangs, Outram, Museum Comparative Zoology, Cambridge, Mass. 1910.
- Barbour, Rev. Robt., Y. M. C. A., Montclair, N. J. 1911.
- Barker, Reginald C., Blackwater, Pinal Co., Ariz. 1911.
- Barnes, R. Magoon, Lacon, Ill. 1908.
- Barrows, Prof. Walter B., Box 183, East Lansing, Mich. 1909.
- Batchelder, Chas. F., 7 Kirtland St., Cambridge, Mass. 1910.
- Baynard, Oscar E., Fort Myers, Fla. 1911.
- Beck, Rollo H., Berryessa. 1894.
- Beekman, Orland, Sespe. 1911.
- Beers, Henry W., 91 Denver Ave., Bridgeport, Conn. 1910.
- Bennett, R. H., Room 409, 444 Market St., San Francisco. 1909.
- Bent, A. C., Taunton, Mass. 1909.
- Bigelow, Homer L., Old Orchard Road, Chestnut Hill, Mass. 1910.
- Birdseye, Clarence, Biological Survey, Washington, D. C. 1909.
- Bishop, Dr. Louis B., 356 Orange St., New Haven, Conn. 1904.
- Blain, Merrill W., 1026 N. Coronado St., Los Angeles. 1909.
- Blayney, Nita A., 920 O St., Fresno. 1911.
- Bliss, J. G., 3281 Briggs Ave., Alameda. 1908.
- Bohman, Herman T., 202 Occident St., Portland, Oregon. 1903.
- Bolander, L. P., Jr., 545 N. Sutter St., Stockton. 1907.
- Bowdish, B. S., Demarest, N. J. 1910.
- Bowles, Chas. W., 1325 Lincoln Way, San Francisco. 1903.
- Bowles, J. H., "The Woodstock", Tacoma, Wash. 1903.
- Boyce, John J., Box 142, Berkeley. 1910.
- Boyer, Edgar, Marshfield, Oregon. 1911.
- Braislín, Wm. C., M. D., 556 Washington Ave., Brooklyn, N. Y. 1910.
- Brandreth, Courtney, Ossining, N. Y. 1911.
- Brauer, W. G., Silver Lake. 1911.
- Brewster, William, 145 Brattle St., Cambridge, Mass. 1904.
- Brooks, Allan, Okanogan Landing, B. C., Canada. 1906.
- Brown, C. Emerson, Boston Society Natural History, Boston, Mass. 1911.
- Brown, D. E., Room 11, Federal Bldg., Tacoma, Wash. 1909.
- Brown, Dudley H., 166 Parnassus Ave., San Francisco. 1911.
- Brown, Wm. J., 250 Oliver St., Westmont, Quebec, Canada. 1911.
- Brown, W. W., Jr., 1033 Key West St., Los Angeles. 1909.
- Bryant, Harold C., 2508 Haste St., Berkeley. 1910.
- Buckland, Hon. James, Royal Colonial Institute, Northumberland Ave., London, England. 1912.
- Burnett, W. L., Box 691, Ft. Collins, Colorado. 1910.
- Burnham, Dr. Clark, Bushnell Place, Berkeley. 1907.
- Burnham, Mrs. Clark, Bushnell Place, Berkeley. 1907.
- Burns, Frank L., Berwyn, Pa. 1909.
- Burt, H. C., Monolith, Kern Co. 1910.
- Burtch, Verdi, Branchport, N. Y. 1910.
- Buturlin, Sergius A., Wesenberg, Esthonia, Russia. 1909.
- Caduc, Eugene E., 563 Massachusetts Ave., Boston, Mass. 1911.
- Camp, Chas., Sierra Madre. 1909.
- Carpenter, Nelson K., Box 127, Escondido. 1901.
- Carriger, Henry W., 5185 Trask Ave., Oakland. 1895.
- Carriker, M. A., Jr., Cincinnati Coffee Co., Santa Marta, Colombia, South America. 1911.
- Case, C. M., 7 Holcom St., Hartford, Conn. 1911.
- Chamberlain, C. W., 36 Lincoln St., Boston, Mass. 1912.
- Chamberlin, Willard, Box 45, University of New Mexico, Albuquerque, N. M. 1906.
- Chamberlin, W. J., 1131 Maple Ave., Los Angeles. 1912.
- Chambers, W. Lee, Eagle Rock, Los Angeles Co. 1897.
- Chandler, Asa C., 2123 Bancroft Way, Berkeley. 1912.
- Chapman, Frank M., Amer. Mus. Nat. Hist., Central Park, New York City, N. Y. 1903.

- Childs, John Lewis, Floral Park, N. Y. 1904.
- Clark, Josiah H., 238 Broadway, Paterson, N. J. 1910.
- Clarke, Rowena A., Kirkwood Branch, "Seven Gables", St. Louis, Mo. 1911.
- Clay, C. Irvin, Box 353, Eureka. 1910.
- Clifton, H. T., 509 E. Walnut St., Pasadena. 1904.
- Coale, Henry K., Highland Park, Ill. 1907.
- Coffin, Sherwood, 35 2nd St., San Francisco. 1911.
- Coggins, Herbert L., 776 Mission St., San Francisco. 1910.
- Cohen, Donald A., Alameda. 1894.
- Colburn, A. E., 744 So. Broadway, Los Angeles. 1905.
- Cooke, Wells W., Biological Survey, Washington, D. C. 1911.
- Cooper, James S., 830 53rd St., Oakland. 1903.
- Court, E. J., 1723 Newton St., Mt. Pleasant, Washington, D. C. 1911.
- Craven, Jesse T., 811 Roosevelt Ave., Detroit, Mich. 1909.
- Crosby, Maunsell S., Grasmere Farms, Rhinebeck, N. Y. 1911.
- Currier, Ed. S., P. O. Drawer 21, St. Johns, Multnomah Co., Oregon. 1904.
- Daggett, Frank S., 2833 Menlo Ave., Los Angeles. 1895.
- Dalgleish, John J., Brankston Grange, Alloa, Scotland. 1910.
- Darlington, E. J., 1111 West St., Wilmington, Delaware. 1911.
- Davenport, Mrs. Elizabeth B., Lindenhurst, Brattleboro, Vt. 1911.
- Davis, Evan, Orange. 1894.
- Davis, J. M., 811 O St., Eureka. 1908.
- Dawson, W. Leon, R. D. 3, Box 83, Santa Barbara. 1906.
- Day, Chester S., 15 Chilton Road, West Roxbury, Mass. 1910.
- Dean, W. F., Three Rivers. 1901.
- Deane, Ruthven, 135 Adams St., Chicago, Ill. 1904.
- Deane, Walter, 29 Brewster St., Cambridge, Mass. 1907.
- Dearborn, Ned, Linden, Md. 1909.
- Dewey, C. L., 6649 Woodlawn Ave., Chicago, Ill. 1910.
- Dickey, Donald R., Box 701, Pasadena. 1910.
- Dickey, Samuel S., 31 S. West St., Waynesburg, Pa. 1911.
- Dille, F. M., 325 16th St., Denver, Colo. 1903.
- Dixon, Joseph, Escondido. 1904.
- Douglas, J. S., Bin 7, Bakersfield. 1911.
- Du Bois, Alexander Dawes, 320 W. Waldron St., La Fayette, Ind. 1911.
- Dunbar, W. Linfred, care of Remington Arms Co., Bridgeport, Conn. 1911.
- Duprey, H. F., Dixon. 1907.
- Durfee, Owen, Box 125, Fall River, Mass. 1911.
- Dutcher, Wm., 990 Central Ave., Plainfield, N. J. 1905.
- Dwight, Jonathan, Jr., M. D., 134 W. 71st St., New York, N. Y. 1904.
- Earle, Miss Eleanor P., Palma Sola, Manatee Co., Florida. 1911.
- Eastman, Lt. F. B., 10th Infantry, Newark, Delaware. 1904.
- Edson, J. M., Marietta Road, Bellingham, Wash. 1911.
- Esterly, C. O., Occidental College, Los Angeles. 1908.
- Evermann, Barton W., Bureau of Fisheries, Washington, D. C. 1911.
- Fawcett, F. H., Narrows, Harney Co., Oregon. 1912.
- Ferris, H. H., care Y. M. C. A., Lake Geneva, Wisconsin. 1910.
- Finley, Wm. L., 651 East Madison St., Portland, Oregon. 1900.
- Fischer, E. J., 525 West 57th St., Los Angeles. 1910.
- Fisher, Dr. A. K., Biological Survey, Washington, D. C. 1904.
- Fisher, Miss Elizabeth, 2222 Spruce St., Philadelphia, Pa. 1910.
- Fisher, Prof. Walter K., Box 373, Palo Alto. 1900.
- Flanagan, John H., 392 Benefit St., Providence, R. I. 1904.
- Fleming, J. H., 267 Rusholme Road, Toronto, Ontario, Canada. 1910.
- Flint, Wm. R., 129 N. Hill Ave., Pasadena. 1912.
- Follett, Richard E., 84 State St., Boston, Mass. 1909.
- Forrest, E. R., 261 Locust Ave., Washington, Pa. 1910.
- Fortiner, J. C., Jr., Brawley. 1910.
- Fowler, Frederick H., Palo Alto. 1901.
- Fox, Mrs. L. L., Los Olivos, Santa Barbara Co. 1911.
- Frazier, J. F., Audubon, Iowa. 1911.
- Fuertes, Louis A., Cornell Heights, Ithaca, N. Y. 1904.
- Gane, Henry Stewart, Santa Barbara. 1903.
- Gardner, Leon L., Claremont. 1911.
- Gault, Benj. T., Glen Ellyn, Ill. 1905.
- Gay, Harold S., Box 7, Coronado. 1901.
- Gifford, E. W., California Academy of Sciences, San Francisco. 1904.
- Gilman, M. French, Sacaton, Arizona. 1901.
- Goldman, E. A., Biological Survey, Washington, D. C. 1901.
- Goldman, Luther J., Orosi. 1908.
- Goodwin, Rev. S. H., Box 284, Provo, Utah. 1910.

- Gould, Jos. E., 5 Clifton St., Norfolk, Va. 1909.
- Grant, Chapman, N. Y. Aquarium, Battery Park, New York. 1906.
- Grant, U. S., 4th, Manter Hall, Cambridge, Mass. 1909.
- Granville, Fred, 3414 Pasadena Ave., Los Angeles. 1911.
- Grey, Henry, R. F. D. 2, Box 154A, San Diego. 1901.
- Grinnell, Joseph, Museum Vert. Zoology, University of California, Berkeley. 1894.
- Groesbeck, Charles E., Venice. 1897.
- Guion, Geo. S., Napoleonville, La. 1911.
- Halladay, Daniel S., 729 Central Bldg., Los Angeles. 1910.
- Hamilton, Dr. B. A., Highland Park, Ill. 1911.
- Hann, H. H., Parkdale, Oregon. 1909.
- Hanna, Wilson C., Box 146, Colton. 1902.
- Harris, R. Park, care of Wm. Wood, Renton, Wash. 1909.
- Hathaway, Harry S., Box 1466, Providence, R. I. 1912.
- Hawver, Dr. J. C., Box 214, Auburn. 1909.
- Hazard, R. G., Peace Dale, R. I. 1909.
- Head, Miss Anna, 2730 Belrose Ave., Berkeley. 1912.
- Held, Miss Elizabeth, 2223 Chapel St., Berkeley. 1911.
- Heinemann, Oluf J., 1662 Grove St., San Francisco. 1908.
- Heller, Edmund, U. S. National Museum, Washington, D. C. 1894.
- Helme, Arthur H., Miller Place, Suffolk Co., N. Y. 1911.
- Henderson, Hon. Junius, Box 398, Boulder, Colorado. 1909.
- Henshaw, H. W., Biological Survey, Washington, D. C. 1909.
- Hersey, L. J., 2121 West 34th Ave., Denver, Colorado. 1909.
- Holland, Harold M., Box 515, Galesburg, Ill. 1901.
- Holt, Wm. L., Nageleseestr. 33, Fricburg im Breisgan, Germany. 1909.
- Hoover, Theodore J., 1 London Wall, London, E. C., England. 1898.
- Howard, O. W., Box 484, Los Angeles. 1895.
- Howell, Alfred Brazier, Covina. 1908.
- Howell, B. F., Jr., 6 North West College, Princeton, N. J. 1909.
- Howes, Paul G., Stamford, Conn. 1910.
- Howsley, L. B., Nyssa, Oregon. 1909.
- Hoxie, W. J., 1522 Bull St., Savannah, Ga. 1911.
- Hubbard, Samuel, Jr., 98 Montecito Ave., Oakland. 1912.
- Hubbs, Carl L., 610 N. Figueroa St., Los Angeles. 1910.
- Huey, Lawrence, 32nd St. & Clay Ave., San Diego. 1909.
- Hunter, J. S., Union Hotel, San Mateo. 1903.
- Illingworth, J. F., Agricultural College, Ithaca, N. Y. 1896.
- Ingersoll, A. M., 832 5th St., San Diego. 1895.
- Irving, F. N., 306 W. 36th St., Savannah, Ga. 1910.
- Isham, C. Bradley, 30 E. 63rd St., New York, N. Y. 1909.
- Jackson, Thos. H., 304 N. Franklin St., West Chester, Pa. 1911.
- Jacobs, J. Warren, 404 S. Washington St., Waynesburg, Pa. 1909.
- Jay, Alphonse, 1622 Pennsylvania Ave., Los Angeles. 1901.
- Jay, Antonin, 1622 Pennsylvania Ave., Los Angeles. 1901.
- Jeffreys, Charles, Tetbury, England. 1912.
- Jessee, Dr. R. L., Philo, Ill. 1909.
- Jewett, R. D., 1238 Calhoun St., Los Angeles. 1912.
- Jewett, Stanley G., 582 Bidwell Ave., Portland, Oregon. 1909.
- Johnson, Frank Edgar, 16 Amackassin Terrace, Yonkers, N. Y. 1911.
- Johnson, Miss Myrtle E., National City, 1908.
- Jonas, Coleman, 1023 Broadway, Denver, Colorado. 1910.
- Jones, Prof. Lynds, Museum Oberlin College, Oberlin, Ohio. 1911.
- Jordan, A. H. B., Everett, Wash. 1911.
- Jordan, Dr. David Starr, Stanford University. 1902.
- Judson, W. B., 409 Mason Opera House, 127 S. Broadway, Los Angeles. 1894.
- Julien, Miss Lillian M., Yreka, Siskiyou Co. 1901.
- Kaeding, Geo. L., Battle Mountain, Nevada. 1903.
- Kaeding, Henry B., Candor, N. C. 1895.
- Kellogg, Miss Louise, 1253 Grove St., Oakland. 1911.
- Kellogg, Prof. Vernon L., Stanford University. 1901.
- Kennard, Frederic Hedge, Dudley Road, Newton Centre, Mass. 1911.
- Kennedy, C. H., Vinecrest Ranch, Sunnyside, Wash. 1912.
- Kermode, F., Provincial Museum, Victoria, B. C. 1911.
- Kessing, Lawrence R., 1430 Santa Clara Ave., Alameda. 1899.
- Keyes, Prof. Chas. R., Mt. Vernon, Iowa. 1900.
- Kimball, H. H., 1527 M St., Fresno. 1909.
- Knickerbocker, Chas. K., 445 N Sacramento Ave., Carpenter Sta., Chicago, Ill. 1905.

- Knowlton, Dr. F. H., U. S. Nat. Museum, Washington, D. C. 1910.
- Kofoid, Prof. C. A., University of California, Berkeley. 1909.
- Kohler, Louis S., 98 Watsessing Ave., Bloomfield, N. J. 1909.
- Kuser, John D., Bernardsville, New Jersey. 1912.
- Lamb, Chester C., 549 W. 43rd Place, Los Angeles. 1899.
- Lancashire, Mrs. J. H., Alma, Michigan. 1911.
- Lane, F. M., 346 Blackstone Ave., Fresno. 1911.
- Law, J. Eugene, Hollywood. 1900.
- Lelande, H. J., 246 Wilcox Building, Los Angeles. 1897.
- Lewis, L. Alva, 809 Yeon Bldg., Portland, Oregon. 1912.
- Libby, Miss Gretchen L., care of Fish and Game Commission, Mills Bldg., San Francisco. 1911.
- Linton, C. B., 125 W. Ocean Ave., Long Beach. 1906.
- Litsey, John B., Jr., 1722 Alston Ave., Fort Worth, Texas. 1911.
- Littlejohn, Chase, Redwood City. 1909.
- Loomis, Leverett M., California Academy Sciences, San Francisco. 1902.
- Love, Chas. A., 3353 22nd St., San Francisco. 1901.
- Luce, George W., Haywards. 1904.
- Luther, Clarence H., 8 McIlroy Bldg., Fayetteville, Ark. 1909.
- Magee, Wm. A., Jr., R. F. D. Box 433, Fruitvale, Oakland. 1912.
- Mailliard, Ernest C., Bank of California, San Francisco. 1909.
- Mailliard, John W., 300 Front St., San Francisco. 1894.
- Mailliard, Joheph, 1815 Vallejo St., San Francisco. 1895.
- Marsden, H. W., Witch Creek. 1905.
- Massey, Herbert, Ivy Lea, Burnage, Didsbury, Manchester, England. 1909.
- Matthews, Dr. Ellen, 142 Kenwood Ave., Glendale. 1901.
- McAtee, W. L., Biological Survey, Dept. of Agriculture, Washington, D. C. 1907.
- McGraw, Kate W., 2301 Hearst Ave., Berkeley. 1912.
- McGregor, R. C., Bureau of Science, Manila, P. I. 1893.
- McLain, R. B., Market and 12th St., Wheeling, W. Va. 1897.
- McQuilling, W. S., 125 N. Fair Oaks Ave., Pasadena. 1909.
- Mearns, Maj. Edgar A., U. S. Nat. Mus., Washington, D. C. 1905.
- Meeker, Jesse C. A., 51 Washington Ave., Danbury, Conn. 1907.
- Meister, H. D., Wauseon, Ohio. 1909.
- Merrill, F. S., Box 855, Spokane, Wash. 1912.
- Mershon, W. B., Saginaw, Mich. 1911.
- Messenger, G. H., Linden, Iowa. 1910.
- Miller, Prof. Loye Holmes, State Normal School, Los Angeles. 1905.
- Miller, Mrs. Olive Thorne, 5928 Hayes Ave., Los Angeles. 1911.
- Miller, W. DeWitt, American Museum Natural History, New York, N. Y. 1909.
- Miner, Dr. H. N., 1426 Henry St., Berkeley. 1903.
- Mitchell, Dr. Walton I., 603 Beacon Bldg., Wichita, Kansas. 1909.
- Moore, Robert T., 46 Mansion Ave., Haddonfield, New Jersey. 1911.
- More, R. L., Vernon, Texas. 1911.
- Moran, R. B., 661 Waverly St., Palo Alto. 1897.
- Morcom, G. Frean, 1815 N. Raymond Ave., Pasadena. 1904.
- Mueller, Carl, Marysville. 1911.
- Munk, Dr. J. A., 337½ So. Hill St., Los Angeles. 1909.
- Myers, Mrs. H. W., 306 Ave. 66, Los Angeles. 1912.
- Nehrling, H., Gotha, Orange Co., Florida. 1911.
- Nelson, E. W., Biol. Survey, U. S. Dept. Agriculture, Washington, D. C. 1904.
- Newbury, F. E., 921 Shreve Bldg., San Francisco. 1904.
- Nichols, J. T., Columbus Ave. and W. 77th St., New York, N. Y. 1909.
- Nicholson, Donald J., Orlando, Florida. 1911.
- Noack, H. R., 309 Perry St., Oakland. 1901.
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THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XIV

November-December, 1912

Number 6

STUDY OF THE EGGS OF THE MELEAGRIDAE

By DR. R. W. SHUFELDT

WITH ONE PHOTO BY THE AUTHOR

WHEN one comes to study the eggs of the various domesticated fowls, and compares those eggs with series of others laid by wild birds, belonging to genera of the supposed-to-be stock from which the several kinds of domesticated ones were derived, it is interesting, and of no little importance, to note the variations which have arisen in the form, colors and markings of the former.

With respect to chickens, for example, the widest variations have become established, since the time of their deviating from the wild stock. The eggs of our true breeds of game hens very closely resemble those of the *Gallus bankiva* of India; while those of all the other fancy and extravagantly formed fowls of the farm and barnyard depart from them in every particular. These are too well known to require any comment here.

As to guinea fowls, there appears to be, upon careful comparison of extensive series of the eggs of the wild birds with those of the domesticated ones, no material difference, and certainly none worthy of mention. This statement is likewise true of the eggs of the wild and tame mallards, muscovy ducks, mandarin duck or Chinese teal (*Aix galericulata*), swans, geese, pheasants, peacocks, and others.

In most of these forms, if not in all, the eggs are unmarked, and therefore any variations that might exist, would be only seen in shape and ground-color. In these particulars, the eggs of the wild birds themselves sometimes exhibit marked variations, as everyone knows who has, for example, ever compared large series of eggs of the wild mallards.

Caton, as I shall take occasion to point out farther on in this article, settled the point that the eggs of tame and wild turkeys were indistinguishable, that is, when we come to compare those exhibiting similar variations; by which is meant,

that when, for example, a wild turkey has laid a very dark egg, densely speckled with still darker spots, we can always find an egg—somewhere—which has been laid by a domesticated turkey, which, practically, would be exactly like it, and so on for other kinds. Beyond such notes as these, however, I shall not enter upon the study of the eggs of the tame turkey in this place, as my object is to record some observations I made upon studying the fine series of eggs of the *Melagridae* in the collections of the United States National Museum.

Caton's article, entitled "The Wild Turkey and its Domestication" appeared in *The American Naturalist* (vol. XI, no. 6, 1877, pp. 321-330), and he there says, on page 324, "The eggs of the wild turkey vary much in coloring and somewhat in form, but in general are so like those of the tame turkey, that no one can select one from the other. The ground color is white over which are scattered reddish-brown specks. These differ in shades of color but much more in numbers. I have seen some on which scarcely any specks could be detected, while others were profusely covered with specks, all laid by the same hen in the same nest. The turkey eggs are more pointed than those of the goose or the barnyard fowl, and are much smaller in proportion to the size of the bird."

This, in the main, is a fair description of the eggs of *Meleagris*, while at the same time it may be said that the ground color is not always "white," nor the markings exactly what might be denominated "specks."

Turkey eggs of all kinds, laid by hens of the wild as well as domesticated birds, have been described and figured in a great many popular and technically scientific books and other works, in this country as well as abroad. I have examined a large part of this literature; but I soon became convinced of the fact that *no general description* would begin to stand for the different kinds of eggs that turkeys lay. They not only differ in size, form and markings, but in ground colors, numbers to the clutch, and some other particulars. In other words, the eggs of our various breeds of tame turkeys are like the eggs of the several forms of the wild bird, that is, the subspecies known to science in the United States avifauna. Therefore I have not thought it necessary to present here any descriptions of the eggs of the tame turkeys or reproductions of photographs of the same.

Among the most beautiful of the wild turkey eggs published are those which appear in Major Bendire's work. They were drawn and painted by Mr. John L. Ridgway of the United States Geological Survey.* These very eggs I have not only examined, studied and compared, but, thanks to Dr. Richmond of the Department of Birds of the Museum, and to Mr. J. H. Riley, his assistant, I had such specimens as I needed loaned me from the general collection of the Museum so that I might photograph them for use in the present connection. Dr. Richmond did me a special kindness here in selecting for my study the four eggs reproduced in the accompanying illustration (Fig. 82). These are all of *M. g. silvestris*.

Of these numbers 1 and 2 are from the same clutch, and doubtless laid by the same bird (nos. 30014, 30014). They were collected by Mr. J. H. Riley at Falls Church, Va. Number 1 is an egg measuring 66 mm x 45 mm, the color being a pale buffy-brown, finely and evenly speckled all over with umber-brown, with very minute specks to dots measuring a millimeter in diameter. The finest speckling, with no larger spots, is at the greater end (butt) for a third of the egg.

Numbr 2 measures 63 mm x 45 mm, the ground color being a pale cream, speckled somewhat thickly and uniformly all over with fine specks of light brown and lavender, with larger spots and ocellated marks of lavender moderately abun-

* BENDIRE CHARLES. *Life Histories of North American Birds with special reference to their Breeding Habits and Eggs*. Washington, Govmt. Printing Office, 1892.

dant over the middle and apical thirds, with none about the larger end or remaining third. Number 3 is no. 31185 of the Collection U. S. National Museum (ex

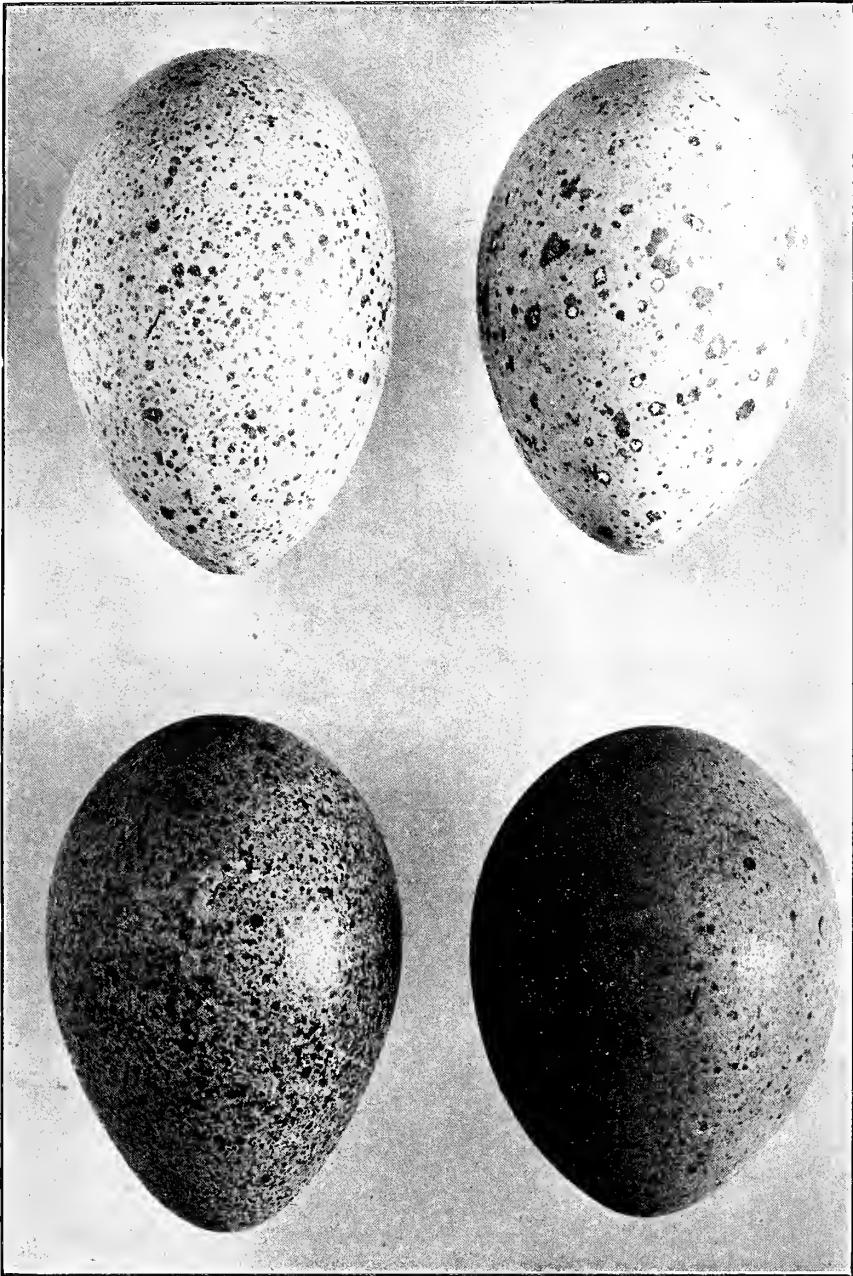


Fig. 82. EGGS OF WILD TURKEY (*Meleagris gallopavo silvestris*)
NO. 1, UPPER LEFT HAND ONE. NO. 2, UPPER RIGHT HAND ONE. NO. 3, LOWER
LEFT HAND ONE. NO. 4, LOWER RIGHT HAND ONE

Ralph Coll.) : it was collected at Bridgeport, Michigan, by Allen Herbert (376
4700 '77) and measures 68 x 45. It is of a rather deep buffy-brown or ochre,

very thickly, and quite uniformly, speckled all over with more or less minute specks of dark brown.

Number 4, collected by H. R. Caldwell (91.310) the locality being unrecorded (Coll. U. S. Nat. Mus., no. 32407) measures 63x48. It is of a pale buffy-brown or pale *café au lait* color, quite thickly speckled all over with fine dots and specks of light brown. Some few of the specks are of noticeably larger size, and these are confined to the middle or apical thirds. Speckling of the butt or big end, extremely fine, and the specks of lighter color.

These eggs were selected by Dr. Richmond on the 16th of April, 1912, and photographed by me four days thereafter.

Referring to the Wild Turkey (*M. g. silvestris*), Bendire says (*loc. cit.*, p. 116): "In shape, the eggs of the Wild Turkey are usually ovate, occasionally they are elongate ovate. The ground color varies from pale creamy white to creamy buff. They are more or less heavily marked with well-defined spots and dots of pale chocolate and reddish brown. In an occasional set these spots are pale lavender. Generally the markings are all small, ranging in size from a no. 6 shot to that of dust shot, but an exceptional set is sometimes heavily covered with both spots and blotches of the size of buckshot, and even larger. The majority of eggs of this species in the U. S. National Museum collection, and such as I have examined elsewhere, resemble in coloration the figured type of *M. gallopavo mexicanus*, but average, as a rule, somewhat smaller in size."

"The average measurement of thirty-eight eggs in the U. S. National Museum collection is 61.5 by 46.5 millimeters. The largest eggs measure 68.5 by 46, the smallest 59 by 45 millimeters."

At the close of his account of *M. g. mexicanus*, Bendire states that "The only eggs of this species in the U. S. National Museum collection, about whose identity there can be no possible doubt, were collected on Upper Lynx Creek, Arizona, in the spring of 1870, by Dr. E. Palmer, whose name is well known as one of the pioneer naturalists of that Territory."

"The eggs are ovate in shape, their ground color is creamy white, and they are profusely dotted with fine spots of reddish brown, pretty evenly distributed over the entire egg. The average measurements of these eggs is 69 by 49 millimeters. The largest measures 70.5 by 49, the smallest 67 by 48 millimeters."

"The type specimen (no. 15573, U. S. National Museum collection, pl. 3, fig. 15) is one of the set referred to above" (*loc. cit.*, p. 119).

This set of three eggs I have personally studied. They are of *M. g. merriami*, and I find them to agree exactly with Captain Bendire's description just quoted.*

In the Ralph Collection (U. S. Nat. Mus. no. 27232, orig. no. 10 $\frac{1}{6}$) I examined six eggs of *M. g. intermedia*. They are of a pale ground color, all being uniformly speckled over with minute dots of lightish brown. These eggs are rather large for turkey eggs. They were collected at Brownsville, Texas, May 26, 1894.

Another set of *M. g. intermedia* collected by F. B. Armstrong (no. 25765, Coll. U. S. Nat. Mus.) are practically *unspotted*, and such spots as are to be found, are very faint, both the minute and the somewhat large ones.

In Dr. Ralph's collection (U. S. Nat. Mus. no. 27080) eggs of *M. g. intermedia* are *short*, with the large and fine dots of a pale *orange yellow*. I examined

* Some of the English books contain descriptions of the eggs of our wild turkeys, as for example "A Handbook to the Game-birds," by W. R. Ogilvie-Grant. (Lloyd's Nat. Hist. London, 1897, pp. 103-111.)

a number of eggs and sets of eggs of *M. g. osceola*, or Florida Turkey. In no. 25787, the eggs are short and broad, the ground color being pale whitish, slightly tinged with brown. Some of the spots on these eggs are unusually large in a few places, three or four running together, or are more or less confluent; others are isolated and of medium size; many are minute, all being of an earth-brown, varying in shades. In the case of no. 25787 of this set, the dark brown spots are more or less of a size and fewer in number; while one of them (no. 25787) is exactly like the eggs of number 3; finally, there is a pale one (no. 25787) with *fine* spots, few in number in middle third, very numerous at the ends. There are *scattered large spots* of a dark brown, the surface of each of which latter are raised with a kind of incrustation. Another egg (no. 27869) in the same tray (*M. g. osceola*), is *small*, pointed; pale ground color with very few spots of light brown (Coll. W. L. Ralph). Still another in this set (27868) is markedly *roundish*, with minute brown speckling, uniformly distributed. There are nine eggs in this clutch (no. 27868), and, apart from the differences in form, they all closely resemble each other, and this is by no means always the case, as the same hen may lay any of the various styles enumerated above, either as belonging to the same clutch, or at different seasons.

NESTING OF THE ROCKY MOUNTAIN NUTHATCH

By F. C. WILLARD

WITH TWO PHOTOS BY THE AUTHOR

TWO members of the interesting nuthatch family are regular breeders in the Huachuca Mountains. They are the Pigmy Nuthatch (*Sitta pygmaea*), and the Rocky Mountain Nuthatch (*Sitta carolinensis nelsoni*). The latter appears much rarer than the former, but, owing to its more general range in the mountains, I am inclined to believe that it is really the most numerous. The Pigmy Nuthatch is confined to the higher ridges where pine stubs abound. The Rocky Mountain Nuthatch is found all over the mountains, from the oaks at the mouths of the canyons to the highest peaks, and it nests wherever found.

Like their eastern cousin, the White-breasted, these birds talk to each other as they hunt for food along the trunk or branches of some tree. If the female is sitting, the male still keeps up his "talking" as he hunts for food to take to her. It is by watching him at this time that I am able to locate the nest. He usually takes the food for his mate into the nest, but it is a very common thing for her to come to the entrance to receive it, or even to leave the nest cavity entirely.

A natural cavity with a long narrow opening is generally selected. The one shown in the illustration is typical. Nine out of ten nests are in oaks, the balance usually in pines though a sycamore or madrone is occasionally selected.

The nest is a mass of assorted fur and hair of various animals, skunk and squirrel fur, cow and deer hair predominating. I have also found rabbit fur and bear's hair in their nests. Enough is used to completely fill the bottom of the cavity and come up a little on the sides.

Five eggs comprise the usual set, though I once found three about to hatch,

and have taken one set of six fresh eggs. The last week in April is pretty sure to show complete sets with incubation begun, in the lower altitudes, and ten days later for the summits of the mountains. These dates vary considerably with different seasons. May 24, 1909, I collected a set of five half incubated eggs from a pine stub on the summit of the main ridge, altitude 8,450 feet; May 4, 1907, a fresh set from an oak near the summit; June 11, 1908, I photographed an adult feeding young which left the nest two days later, altitude 5,800 feet; May 25, 1909, I found a nest full of young large enough to fly. The nest was in a dead stub of a sycamore in the bed of a canyon, altitude 5,200 feet.

Sometimes the bird sits very close and at others she flushes readily. The



Fig. 83. ROCKY MOUNTAIN NUTHATCH AT ENTRANCE TO NEST, CARRYING FOOD FOR YOUNG

former is usually the case, and she will stay in the nest cavity while it is being chopped open, climbing up into the cavity above the opening. I have never found a nest in a cavity that did not extend above the entrance.

One brood, only, is raised in a season. The same nesting site is sometimes used year after year, though vermin in the nest frequently cause them to select a new location the next season.

This Nuthatch is quite cute about drawing one's attention away from the nesting locality. May 18, 1910, I heard a pair "talking" to each other, and began to trail them. One soon secured some bit of food and started up the steep mountain side with me in hot pursuit. I soon lost sight of it, but discovered the mate close by with some grass or bark or something of that character in its beak. It dove into a cavity of a small oak, and shortly reappeared without

its nesting material. After a few moments calling it was joined by the other one of the pair, and both were soon busy carrying nesting material into the oak. I quietly withdrew, to return ten days later. There were no birds about so I examined the cavity and was chagrined to find only the few bits of grass and fur I had seen them carry in. Some time later I discovered the real nest with its family of large young in an oak some distance farther up the mountain side. It then dawned upon me that they had played this trick, and I had to smile to myself as I realized how nicely I had been hoodwinked.

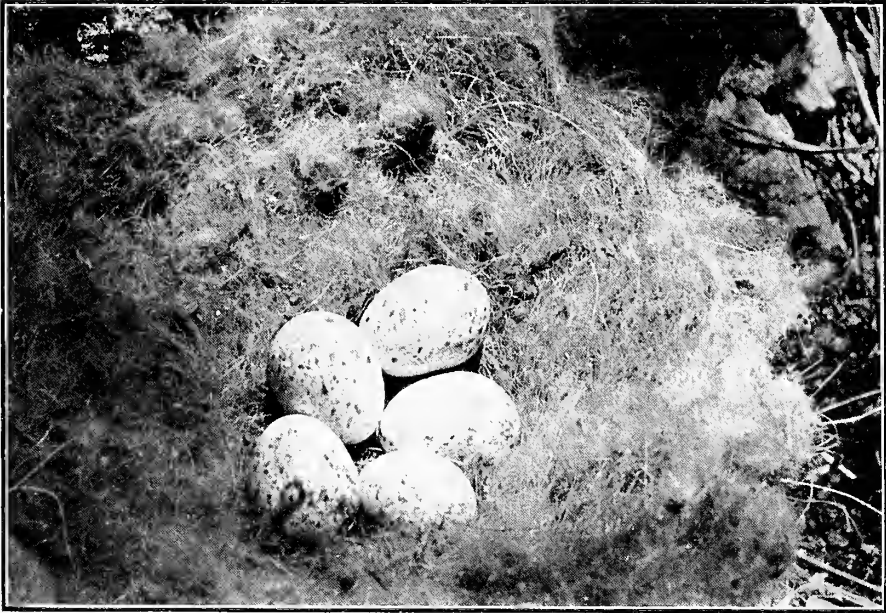


Fig. 84. NEST MATERIAL AND EGGS OF ROCKY MOUNTAIN NUTHATCH;
A LITTLE LESS THAN NATURAL SIZE

A HORSEBACK TRIP ACROSS MONTANA

By ARETAS A. SAUNDERS

IN the summer of 1911 it came to my fortune to take a horseback trip nearly across the State of Montana, starting from Bozeman in Gallatin County, and ending at Chouteau in Teton County. The trip led me through varied valley and mountain country lying on the eastern side of the continental divide. Just a week was occupied in making the trip, from July 10 to 16. At this season of the year the weather in Montana is at its best, and except for one or two days when the heat became a little too great for comfort, this was true of the weather I experienced. The June rains were over, but the dry weather of late summer had not yet come to rob the grass of its fresh green. Many varieties of flowers were in their fullest and freshest bloom, and most birds were finishing their nesting and were still in full song.

The streets of Bozeman are lined with cottonwood shade trees, in which many species of birds are common throughout the summer. On the morning when I started my trip most of them were singing. They were principally common species, such as the Robin, Warbling Vireo, Western Wood Pewee and Yellow Warbler. Among them, however, were two birds, usually occurring only in the evergreen forests of the mountains, that here in Bozeman nest down in the valley among the cottonwoods. These are the Cassin Purple Finch and the Pine Siskin. The song of the Purple Finch I heard in several places on this morning, and in one place watched a brilliantly colored male, rendering his performance from the high branch of a leafy cottonwood. The Pine Siskins were decidedly common. The goldfinch-like song, interspersed with whispered, long drawn out and rather unmusical trills, was heard in the cottonwoods everywhere, and the little brown streaked birds were frequently seen undulating from one tree top to the next.

The first part of my ride lay across the broad Gallatin Valley, through the towns of Belgrade and Manhattan. Everywhere were waving green fields of wheat, oats, barley, or clover and timothy. From a few favored spots came the song of the Bobolink, now fairly common in many places in the valley, but the two birds by far the most common, whose songs could be heard on every side, were the Western Vesper Sparrow and Western Meadowlark. In Montana the Meadowlark is the bird of the people, taking the place in their hearts that the Robin holds with people of the east, or the Mockingbird with those of the south. He is fully deserving of this place too, for no other bird is so well distributed throughout the state, so abundant, so full of joyous, overflowing, wonderful song. He comes with the first return of spring, and sings from the first day of his arrival till late summer, when he stops for a short time, only to burst forth again with the first cool days of fall. In some of the warmer spots he even remains throughout the bleak winter, and occasionally tries his voice on the warmer winter days.

Swallows were fairly common in the valley, wheeling about the ranch buildings. Nearly every barn had its colony of Cliff Swallows nesting under the eaves, and the Barn and Rough-winged swallows, though less common, were seen frequently. In one place where the road crossed an irrigating ditch over a small bridge, a pair of Barn Swallows flew out from under the bridge, and I stopped to investigate, and locate the nest that was plastered against a cross piece beneath. In the Gallatin Valley the Barn Swallow seems much fonder of bridges than barns, in fact one feels inclined to want to change the names of several swallows to suit the locality: to call the Barn Swallow, Bridge Swallow; the Cliff Swallow, Barn Swallow; and to bestow the name of Cliff Swallow upon the Violet-green.

A few miles past Manhattan came the end of the main Gallatin Valley. The road, formerly level, took a decided drop down hill, and, after a mile or so of this, came out at Logan in the Three Forks Valley. I stopped at Logan for a short rest and finally rode on to Three Forks for the night. For several miles the road led across a broad, flat, marshy area between the Gallatin and Madison Rivers. I remember seeing several Long-billed Curlews feeding about one of the pools, but I soon forgot to look for birds and paid all my attention to the myriads of mosquitoes. Nowhere else in Montana have I seen them so abundant as they were here. They swarmed about my head in thousands, and, though we traversed the flat at a lope, masses of them settled thickly on my horse's head

and neck. We were glad to cross the bridge over the Madison River and find shelter from the pests in the town of Three Forks.

In the morning I left Three Forks, crossing over the Jefferson, the third of the rivers which, uniting to form the Missouri a few miles north, gives the place its name. I had now entered Broadwater County. The road here leaves the river and traverses the hills several miles to the west of it. For some distance I climbed up the bare grass hills. The soil was dry and rocky and the country consequently unsettled and used only for stock range. On the east side of the road were several coulees, where sage-brush grew thickly. From one of these came the song of a Sage Thrasher, and I turned my horse up the coulee to hear it better, and finally get a glimpse of the bird. In this part of Montana the Sage Thrasher is decidedly rare. This one made my third in over three years experience, and all the three were in widely separated localities. Sage-brush is slowly disappearing before the advance of settlement in many places, and with it many sage-loving birds are becoming rare. The rarity of the Sage Thrasher, however, cannot be for this reason alone, for there are many places where sage is still common, in which there are no Thrashers.

The song of the Sage Thrasher is something between that of the Brown Thrasher and that of the Solitaire. His voice is very similar to the Solitaire's, and, heard at a distance, the songs sound much alike. From close at hand, however, the song becomes less a mixed jumble of sounds, and the rhythmic quality of the Thrasher is more noticeable. There are certain definite phrases, repeated two or three times as with the Brown Thrasher, but there is no pause between them. I believe the bird is more sparing of its song, not appreciating an audience, but slinking silently off into the sage at the first approach, as this one I was watching did when I drew near.

I soon reached the top of a low divide, in an area of flat open prairie. For several miles here the land was typical prairie land in every respect. The principal vegetation was buffalo-grass and prickly pear, and I was much delighted to find a typical prairie bird, the McCown Longspur. In fact Longspurs and Desert Horned Larks were the only birds there were on this area. The Horned Lark, while common throughout the prairie regions, is found in many other dry grassy areas also, that are not true prairie, but the Longspur belongs to the prairie and the prairie alone. I had not supposed before, that this species ever occurred westward and southward of the main prairie region of the state, and for the remainder of the day I felt the charm and delight of having made a new discovery.

The Longspurs were in full song, a charmingly sweet song, that tinkled across the prairie continually and from all sides. The song has been compared to that of the Horned Lark, but to my mind it is much better. The quality is sweeter and richer; the notes are louder and clearer, and above all, the manner in which it is rendered is so different from that of the lark or of any other bird, that the lark passes into insignificance in comparison. The song is nearly always rendered when in flight. The bird leaves the ground and flies upward on a long slant till fifteen or twenty feet high, then it spreads both wings outward and upward, lifts and spreads its white tail feathers, erects the upper tail coverts and feathers of the lower back, and bursting into song, floats downward into the grass like an animated parachute, singing all the way.

I soon left the prairie behind, and crossed an area where dry farmers had very recently taken up the land. New fences, without gates, stretched across the

former position of the road, and I had some difficulty to find my way. The road finally led northward and eastward, down into the Missouri Valley, through country not unlike that of the Gallatin Valley, seen the day before. I crossed the river on a long bridge and entered the small town of Toston. Both the horse and I were hot, tired and hungry, so I decided to rest the remainder of the afternoon and ride on to Townsend in the cool of the evening. I put the horse in a livery barn and after lunch in a small restaurant, finding nothing of interest in the town, I strolled a little way along the river bank, and sat down in the shade of the cottonwoods.

A pair of Western Kingbirds had a nest full of young in the fork of a cottonwood directly over my head. They started to scold me, but after a short time gave it up and went back to feeding the young again. Their scolding, however, brought out the other feathered inhabitants, consisting of several Robins and Yellow Warblers, a pair of Catbirds, a Western Wood Pewee, and a brilliantly colored Bullock Oriole. They watched me for a time but soon went away and left me to watch the Kingbirds. The young were very noisy. They kept up a continual clatter all the time, varied only when the parents came with food when it became much louder. This nest was the first one I had seen in the fork of a cottonwood. The commonest location for the Western Kingbird's nest in Montana seems to be between the cross arms of a telegraph pole. I had seen several such nests, near the railroad track at Logan the day before. When built in such a place, one of the birds may usually be seen on guard, sitting on the telegraph wire within five or six feet of the nest. In fact, whenever I see a Western Kingbird thus seated on a wire, I look for a nest nearby and am usually successful in finding it. Here in the Missouri Valley the Western Kingbird is decidedly commoner than the eastern species. The reverse is true in the Gallatin Valley, where the elevation is some 700 feet higher, the factor which probably causes the difference.

After some time I wandered out on the bridge I had crossed. Cliff Swallows were nesting somewhere beneath the bridge in large numbers. On the edge of the river not far from the bridge they were gathering mud for their nests, though it seemed to me rather late in the year for nest construction to be still going on. Fifteen or twenty birds were gathered in one spot, gathering the mud. They poised daintily, only their feet and bills touching the mud, while their wings were wide-spread and constantly fluttering.

In the evening I rode on, down the Missouri Valley to Townsend, where I stopped for the night. On the way I was glad to see many Bobolinks, and in one place, several Lark Buntings, a bird quite common in some parts of Montana, but with which I have yet to make intimate acquaintance. One of the Buntings favored me with a flight song, a performance I had never witnessed before.

The next day I rode over a low divide between the Missouri and Prickly Pear valleys, crossing from Broadwater to Lewis and Clark County, and stopping the next night at Helena. After leaving the Missouri Valley the road led for most of the way over a barren rocky stretch of country where there were no birds. When I reached the Prickly Pear Valley it was the middle of the afternoon, when birds were silent and not stirring. I remember but one observation that day that seems worth recording. An electric power line follows the road here for several miles, and near East Helena, I found beneath the wires, the dead body of a Wilson Phalarope. The bird had evidently killed itself by

flying against the wires and had not been dead more than a day or two. I presume from this that the Wilson Phalarope breeds in the marshes of the Prickly Pear Valley, though there were no marshes in the near vicinity of the place where I found the bird.

The next day I decided to take only a short ride, as the weather was hot and trips of the last two days had been rather hard ones, particularly for my horse. So I started rather late and stopped early, going north along the route of the Great Northern Railway as far as a ranch near the station of Mitchell. On the way out of Helena, I remember seeing a Solitaire, seated on a wire in the northern part of the town. It seemed to me a rather low elevation for this bird and decidedly not in its usual habitat. It is possible though, that this species breeds among the rocky cliffs of Mount Helena a few miles west of the town, though even there it would be at an unusually low elevation.

The people were early risers at the ranch where I stopped that night, so I was on my way early on the following morning. A short distance north of the ranch the road entered the Prickly Pear Canyon, and in the next ten miles, between here and Wolf Creek, I enjoyed the best scenery of my entire trip. High walls of reddish colored rock, seamed and broken into rectangular masses, rose on either side, while along the canyon bottom flowed a fair sized stream, its banks fringed with willows, alders, and occasionally tall cottonwoods. On the steep slopes above the canyon walls were clumps of Douglas firs and yellow pines. The road followed along the stream bottom, or occasionally climbed a little way up the hillside on one side or the other, where a better view up and down the canyon could be obtained. Wild rose bushes, covered with pink blossoms, grew in profusion along the road, while syringa bushes, growing in clefts of the rocks, formed dense white masses, often extending high up into the walls of the canyon, the fragrant blossoms filling the air with their sweet perfume.

At Wolf Creek I left the canyon road and turned westward, on the road to Stearns, which was my destination for the night. The road left the canyon and climbed up hill, till it reached a wide stretch of rolling grassy hills. This country, neither valley nor mountain, continued all the way to Stearns. Tall waving, green grass clothed the hillsides, and with it were many flowers of various colors, but the most abundant of these, one whose spire shaped clusters of blue flowers covered the hillsides everywhere, was the lupine. The two most abundant birds, in fact almost the only birds in this country, were the Meadowlark and the Vesper Sparrow. These two birds were everywhere and their songs rang from the grass hills on all sides.

The next morning I left Stearns, which is merely a ranch and post office on the South Fork of the Dearborn River, and rode on northward across the divide between the Dearborn and Sun rivers to Augusta. The same grassy hills continued through the Dearborn country, but where I crossed the main branch of the Dearborn, the road took me down into a steep-sided canyon, whose walls were grown with Douglas fir and limber pine. Here in the firs I heard the voices of two mountain birds, the Audubon Warbler and the Western Tanager.

On the other side of the river I found that the road carried me in decidedly the wrong direction, so, since there were no fences across the grassy hills as far as I could see, I left it and rode across the open country. As I crossed the divide between the drainages of the Dearborn and Sun Rivers, a decided change in the character of the country was noticeable. The rolling, round-topped hills changed to fantastically shaped, flat-topped, prairie buttes, the tall grass and

blue lupine changed to short buffalo-grass and prickly pear, and the bird voices changed from Vesper Sparrows and Meadowlarks, to Horned Larks and McCown Longspurs. Far to the north lay an irregular line of dark green cottonwoods, marking the course of the South Fork of the Sun River, and I knew that somewhere along its banks lay the town of Augusta. The town, however, was on the north side of the stream and completely hidden from my view behind the cottonwoods, so that I was at a loss to know toward which part of the stream to ride. As I drew nearer I made out a ranch building on the south side of the stream and heading toward that, soon struck a road which by good luck, crossed the stream on a bridge, but a quarter of a mile above the town.

The next day was the last of the trip, and over a road with which I was already familiar. Chouteau lay but twenty-eight miles to the north. Four miles out from Augusta I crossed the North Fork of the Sun River, which forms the boundary between Lewis and Clark and Teton counties. On the other side of the river the road led to the top of a long, level, prairie bench, where it remained nearly all the way to Chouteau. At one place in a hollow beside the road, lay one of the small alkaline ponds which are characteristic of this section of the country. I left my horse to graze beside the road, and took a walk around the borders of the pond to see what birds were in the vicinity. A few weeks ago I had explored this same pond, and had found many pairs of Avocets and Wilson Phalaropes evidently breeding. In fact I remember two half-grown Avocets, struggling through the green scum that bordered the pond and swimming away into the open water at my approach, while their parents circled about my head. Now they had all left and the only water birds seen were a flock of ducks, principally Mallards and Baldpates, swimming about near the edge of a small grassy island. Horned Larks and Longspurs fed about the edge of the pond, the Longspurs walking daintily over the green scum at the edge, and eating the small insects that swarmed there. Several young Longspurs, barely able to fly, were here with their parents, and one such had evidently come to grief in its efforts to imitate its parents' example, and was drowned in the midst of the scum.

So far the weather had been perfect throughout the trip, but now as I rode over the prairie bench, I noticed a thunderstorm coming up. I saw that unless I soon got under cover I was in for a wetting, so noticing an old sheep camp in a coulee on the east side of the bench, I turned down there and found shelter for myself and my horse under the shed. The storm came and I was glad I was not out in it, for the rain soon turned to hail, with stones large enough to be decidedly uncomfortable. Even during the storm I found birds to watch, for a Say Phoebe and a small flock of Longspurs came under the shed to seek shelter also. The Phoebe sat on a beam under the roof, quiet save for an occasional flirt of the tail, but the Longspurs walked about, feeding on the ground under the shed as though they were out in the open in the best of weather.

When the storm was over I proceeded on my way. The sun shone out again over the dripping prairie, and the Longspurs broke into song everywhere as though it were a morning chorus. Finally I came to the end of the long bench and the road wound downward through a group of curiously shaped rocks. A colony of Cliff Swallows were nesting on the sides of one of these rocks, while a Rock Wren in song, and a Duck Hawk, wheeling over the prairie were other birds that probably had their homes there. Around a bend in the road I soon came in sight of the Teton River Valley and the town of Chouteau among the cottonwoods of the river bank.

NESTING HABITS OF THE WESTERN BLUEBIRD

By HARRIET WILLIAMS MYERS

THE Western Bluebirds are, as a rule, winter visitants, only, in the vicinity of Los Angeles, staying about in small flocks until spring, when they disappear. Recently, however, some of them have been changing their habits and becoming resident birds.

The only place where I have known of their nesting is in a Los Angeles city park, called Sycamore Grove. This park is a continuation of the Arroyo Seco, and is filled with large live oak and sycamore trees. One side is bordered by a busy thoroughfare where electric cars and vehicles are continually passing. Moreover, this park is a most popular place for picnic parties and is filled with people throughout the summer months. It seemed a little queer that these birds should have chosen so busy a place for a nesting site, when by going a little farther back they could have had perfect quiet.

On the 24th of April, 1910, while watching birds at Sycamore Grove, I noticed a male Bluebird flying about. Having been told that these birds nested in the park the year before, I gave all my attention to locating them. I had waited only a short time when the female appeared on a wire that was strung among the big trees. After darting out into the air and down onto the lawn a few times, she flew up into a tall sycamore tree that grew close beside the walk on that busy thoroughfare, Pasadena Avenue. This tree had four trunks, one of which had been broken off about thirty feet from the ground. A round hole just below the break, partially hidden by a growth of new leaves, suggested that it had once been the nesting site of a woodpecker.

For one hour and thirty-five minutes I watched the nest. During this time the female left four times, staying away five minutes once and eight the other times. Her times for brooding were respectively twenty-two, eighteen, ten, and twenty-four minutes. Almost invariably during this and subsequent watchings the female did not leave the nest until the male came to it. A small broken limb grew out from the nesting trunk and this was used by the male as a resting place. He never brooded the eggs, although sometimes he hopped down into the nest, or beside it, as if to assure himself of their safety; then after a moment's inspection he returned to the resting site, or flew directly away. His coming to the dead branch was always a signal for the female to leave the nest and fly away. It was almost as if the little mother away up there above everything, and with only the blue sky to look at, knew that her mate was thinking of her and would come and remind her, and this he surely did.

He did not seem to guard the nest while the little mother was away, but often accompanied her. Together they foraged about on the lawn or in the trees until time to return to the nest, when quite often the gallant male accompanied his mate homeward, then flew away when he had seen her located. Neither bird seemed at all shy, oftentimes foraging about on the lawn only a few feet from where I sat.

Four days later I again visited the nest, staying an hour and a half. During that time the female left the nest four times as before. The longest interval of staying away was twenty-seven minutes; the shortest two minutes. The longest interval of brooding was sixteen minutes; the shortest thirteen. Twice

the male visited the nest for a moment. During one of the brooding intervals a blackbird rested on the telephone wire near the nest, and the male immediately drove him away.

I did not visit the park again until May 3, five days later. Then I stayed only a short time and did little watching, as a picnic party claimed my attention. The leaves had grown so large around the nest that it was harder to watch than at first, and I could not be sure whether the female was still brooding, or not, but from later developments I believe that the young had probably hatched. Three days later, when I watched for an hour, there was no doubt of it. During the hour fifteen trips were made to the nest, the feeding being very equally divided. In fact, with two or three exceptions, the birds were both at the nest at once each of the fifteen times. Several times the female stayed from one and one-half to two minutes at the nest. The male also lingered, though not so long as the female.

Only a few times did I hear either bird utter a note. No song was heard during my watching, only a single call note given in a very low tone. Though many of the writers on California birds speak of the Bluebird's song, I am inclined to think he has none. W. Leon Dawson author of the "Birds of Washington" tells us that in the fifteen years he has studied the Western Bluebird in Washington he has never heard one sing. If so reliable and thorough a bird student as Mr. Dawson has heard no song in Washington, where they nest abundantly, I believe we are quite safe in saying that they have no song. It is an interesting point, well worth the bird lovers' while to observe, should he come across a pair of these birds nesting.

I was prevented from visiting the nest until May 14, when I found the young had flown. They were nowhere about, but a friend told me that she had seen several young bluebirds in another part of the park the day before. On this day I watched at the nest for over an hour, and was mystified at the actions of the birds. It was evident that they were not feeding, and several times both birds made trips of inspection to the nest. The young were not about, nor did the old birds seem to be caring for them, so I came to the conclusion that the birds, having raised their first family, were making preparations for another. On June 2 I visited them long enough to assure myself that they were, indeed, occupying the same nest for a second brood.

Although I have not again watched the nesting habits of these Western Bluebirds I know that they are still about in this park.

FROM FIELD AND STUDY

Notes on the Texas Nighthawk.—The field party from the Museum of Vertebrate Zoology which spent the last season (1912) in the Sacramento Valley remained at Winslow, Glenn County, from June 15 to 20.

About 6 p. m. on the afternoon of June 17 I was tramping over the rocky country bordering Stony Creek, when a Texas Nighthawk (*Chordeiles acutipennis texensis*) was flushed. An examination of the place from which it flew showed the presence of two young, resting side by side on the rocky ground. The parent bird feigned a wound, fluttering about on all sides while I was in the vicinity. When I finally followed it, I was led farther and farther away from the site of the "nest."

On the morning of June 18 I desired to photograph the young birds but either they had moved, or the parent had moved them, and I was unable to locate them, although I went over the ground very carefully and may have looked right at them!

Evidently they were not far away, however, for every time I came into the vicinity the old bird was there to renew her deluding tactics.

I discovered them again on the morning of June 19. They were about fifteen yards from the place where I first found them, and the mother was brooding. The sun beat down fiercely during those days, and I cannot understand how the birds could withstand it on that rocky ground with the granite glare surrounding them and not a particle of sheltering shade.

I hurried to camp for the camera. Fifteen minutes later when I returned one of the young was eight feet from the other. I replaced it, took their pictures, and the photograph here reproduced is the result.

One evening about 8:30 p. m. I passed by the locality, and found that the young were more active then than during the hours of daylight. They would run a few inches at a time in a straight line over the ground, while during the daytime they remained perfectly quiet and gave no sign of seeing the intruder.

The coloration of the young blended so remarkably with their surroundings that it was well-nigh impossible to see them. It was more difficult to see the birds in bright sunlight



Fig. 85. TEXAS NIGHTHAWK NESTLINGS, ILLUSTRATING THE PROTECTIVE NATURE OF THEIR COLOR AND MARKINGS

than at other times. When I returned with the camera the day I took the photograph, I had the utmost difficulty in locating the nestlings, although I knew exactly where they were. In fact, I nearly stepped on one. I had been looking straight at it, but failed to make it out.

Only one parent was noted at any time. The female and young were collected (nos. 22702, 23157, 23158, Mus. Vert. Zool.).

Incidentally Mr. Grinnell informs me that this is to date the most northern record of the breeding of the Texas Nighthawk by over two degrees of latitude.—WALTER P. TAYLOR.

Recent Santa Barbara Records.—Man-o'-war-bird (*Fregata aquila*). On the 12th of August (1912) two of these birds were seen sailing about over the estero near Carpinteria. Upon sighting us they approached curiously, allowing completest inspection, then passed inland nearly a mile, rising to a height of several thousand feet, after which they drove straight west till lost from sight (passing thus directly over Santa Barbara). Another bird was seen by Mr. Torrey and myself close in shore at a point thirteen miles west of town, on the 27th of the same month. Mr. E. S. Spaulding also reports having seen single birds on two occasions near the Santa Barbara pier.

Snowy Heron (*Egretta candidissima*). A single bird in full plumage was sighted on

the sand-spit near Carpinteria, in company with some gulls. It flew at first in wild alarm, but would not forsake its less distracted comrades. Two days later, namely, on the 4th of May, it was seen standing at rest, this time quite alone, upon the mud-flats not half a mile back from the sand-spit.

Anthony Green Heron (*Butorides virescens anthonyi*). The occurrence of this bird is not remarkable for this section, save that its abundance this year is in marked contrast with its total absence last year. It has evidently bred this year at half a dozen near-by stations.

Least Bittern (*Ixobrychus exilis*). Counted a rare bird locally, but its occurrence near Goleta on the 3rd of May completed a list of seven Herodiones seen hereabouts within two days; namely, White-faced Glossy Ibis, Bittern, Least Bittern, Treganza Blue Heron, Snowy Egret, Anthony Green Heron, and Black-crowned Night Heron.

Baird Sandpiper (*Pisobia bairdi*). Of regular occurrence again during the August migrations, from the 8th to the 22nd inclusive. Birds of this species rarely appear by themselves, but mingle freely with the more abundant Westerns (*E. mauri*). However, on the 22nd, a solitary bird settled near me on the Carpinteria beach as though seeking the companionship of a larger wader. I meekly accepted the role of Curlew, and by judicious advances succeeded in establishing a compromise distance of fifteen feet. Back and forth we fared for half an hour, "one little sandpiper and I", the bird keeping steadily to the upper wash-line, or flitting if too hard pressed, while I jabbed the button feverishly as long as the plates lasted. The result is a handsome series of portraits, "if I do say it as shouldn't."

Yellowlegs (*Totanus flavipes*). On the 30th of August five of these birds were sighted in company with two "Greater" (*T. melanoleucus*), as they fed upon the Beale estero, within the eastern limits of Santa Barbara. Mr. Torrey and I had them under frequent observation for a period of two weeks and I was able to secure a few photographs, albeit indifferent ones by reason of the extravagant alarm invariably displayed by the larger species.

Surf-bird (*Aphriza virgata*). A flock of twenty-three birds afforded three hours of pleasant diversion on a rocky point beyond La Patera, May 3rd, 1912.—W. LEON DAWSON.

The Probable Breeding of the Bohemian Waxwing in Montana.—I have to record the occurrence and probable breeding of a pair of Bohemian Waxwings (*Bombycilla garrula*) on the West Fork of the Sun River in northern Lewis and Clark County, Montana, in August, 1912. I first observed these birds on August 18, a very wet, rainy Sunday, when the shortness of our food supply had tempted me out of camp to try the fishing. I was crossing a small grassy flat along the bank of the mountain stream, which was bordered by scattered clumps of lodgepole pine, spruce and cottonwood, when I first heard waxwing notes that were louder and of a different quality from those of the common Cedarbird. I soon found a waxwing, seated in the dead top of a small lodgepole pine. The light was poor, and the damp weather made my glass almost useless, but I believed that I detected the wing-bar which distinguishes this species from the Cedarbird and was sure that the note was decidedly different. The bird was soon joined by its mate, and I spent the next two hours in watching the pair and searching through the wet bushes for a nest. The birds remained in the vicinity and acted as though they had a nest, probably containing young, but, though it seemed as if I searched every tree and bush within several hundred yards, I failed to find it.

Three days later, August 21, my work took me near this place again. I had no time to make further search for the nest, but took my collecting gun along. I found the birds frequenting the same spot, and after examining them in a much better light than formerly, and finding my former identification correct, I secured one in order that the record would be unquestioned. The bird secured, which I had hoped was the male, proved to be the female. Her throat was much distended and I found that it contained fourteen berries of a small mountain shrub (*Shepherdia canadensis*). Assuming that the feeding habits of this species are similar to those of the Cedar Waxwing, this fact strengthens my belief that the birds were feeding young in the vicinity. The point where these birds were found is in the Canadian life zone, at an approximate elevation of 5200 feet. This is, to my knowledge, the first authentic summer record of this species south of the Canadian border.—ARETAS A. SAUNDERS.

The Calaveras Warbler in the Yellowstone National Park.—On the morning of September 9, 1912, while examining the remains of birds overcome by noxious gases in the Stygian Cave near Mammoth Hot Springs, Yellowstone National Park, I was surprised to find a Calaveras Warbler in a fair state of preservation. The specimen had evidently not been dead more than twenty-four or forty-eight hours. It was in good plumage and the

characteristic chestnut patch on the head had the feathers slightly tipped with gray. The bird was evidently a migrant. So far as I am aware, this is the first record of the occurrence of *Vermivora rubricapilla gutturalis* in the Yellowstone Park and the first in this part of the Rocky Mountain region. The nearest records hitherto published are those from Idaho and Wyoming. Dr. Merrill (*Auk*, 1898, p. 18) found this warbler breeding at Fort Sherman, Idaho; and Knight (*Birds of Wyoming*, 1902, p. 145), reports four specimens from southeastern Wyoming but refers them to the eastern form *V. rubricapilla rubricapilla*.—T. S. PALMER.

White Pelican at Bellingham Bay, Washington.—The appearance of White Pelicans (*Pelecanus erythrorhynchos*) in this vicinity is perhaps sufficiently out of the ordinary to be worthy of record. On September 5, 1912, a flock of twenty or twenty-five of this species was seen near the mouth of the Nooksack River, at the head of Bellingham Bay. A resident of the neighborhood who went in pursuit shot three of the birds, and an Indian of the Lummi Reservation, across the river, shot two more. I visited the scene on the following day and inspected the dead birds. One appeared to be an adult, and the four others I judged to be immature. Some of these specimens have since been mounted. There is but one other record of this species in the Bellingham Bay region. That occurrence was about twenty-five years ago.—J. M. EDSON.

"Popular" Ornithology.—During a recent visit to Los Angeles I attended a moving picture show exhibiting at one of the leading play-houses. It purported to represent the Carnegie Museum Alaska-Siberian Expedition in action, and the pictures were explained by a gentleman in evening dress who was no less a person than "Professor M. A., Ph. D.," who had taken the pictures. The pictures were really wonderful, of moose, seals, walruses, polar bears, and Eskimos in life, not to mention bird colonies, which were our particular interest. No one would begrudge good fortune to the doughty captain, F. E. Kleinschmidt, who under the guise of leader of a scientific expedition, is cleaning up a 'cool' half million from this moving picture rights this season. Rarely has the public received more entertainment and profitable instruction for its money than from this show. The "spiel," too, was pretty fair—until it came to the birds. But when pictures of a colony of Red-faced Cormorants were shown upon the screen, and the "Professor" gravely introduced them as Spoon-billed Sandpipers, I gasped. The lecturer proceeded airily to tell a cock-and-bull story about the Spoon-billed Sandpiper, how the female laid only one egg which the male henceforth guarded in terror of his life; and he raised a laugh over the shocking example set by these militant suffragets of the north (unoffending shags!). Next we were taken to view a magnificent colony of Pallas Murres, tens of thousands of them, and these were presented to us as "Red-faced Cormorants." We learned that the females of this species lay two eggs which they carry in the folds of the naked skin (having meanwhile plucked their breasts entirely bare), in order that they might not come in contact with the icy rock, etc., etc. And this Doctor of Philosophy (also Master of Arts, think of it!) did actually take the pictures—no doubt of that—although he seems not to have profited mightily from his "scientific" associations.

Preceded by a professional card, the writer ventured to take the histrionic professor mildly to task after the show. He capitulated at once. "I know I get all balled up on those birds, but what's the odds? *The public don't know the difference.*" And I guess he was right, for this was the fourth week of the engagement.—W. LEON DAWSON.

The Wood Duck at Santa Barbara, California.—On February 18, 1912, I was so fortunate as to come upon a pair of the beautiful Wood Ducks (*Aix sponsa*) in a rather heavily wooded section of Mission Creek, a small stream running along the outskirts of the town of Santa Barbara. I was lucky enough to see them swimming in the stream some distance below me and, by careful stalking, was able to crawl within twenty feet of them, thus enabling me to watch them for half an hour without awakening a suspicion on their part. A week later, on February 25, I once more found them close to the original location, seemingly very much at home, as the male swam and paraded himself to his, and my, heart's content, although his mate seemed too busy eating to pay him much attention.

I left Santa Barbara for the north on February 27, and consequently was unable to finish the study, but I feel that there was a very strong possibility of their remaining to nest. There was a large flow of water in the stream, and a number of most satisfactory hollow limbs in the immediate vicinity; thus it would have been impossible to find more suitable conditions.—J. H. BOWLES.

THE CONDOR

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EDITORIAL NOTES AND NEWS

With this, the last issue of the year, THE CONDOR concludes its fourteenth volume. Only one preceding volume (1908) has numbered more pages. As for quality of contents we leave the reader to judge. The point in mind is to suggest to all Cooper Club members as well as subscribers that their regular cash contributions are now payable. Remember that early remittances save the Business Managers from much clerical labor. And this means that commensurately more attention can be given to ways and means for further growth.

As for the Editors, their dream is to secure for the coming year the same high standard of articles that have predominated in the present volume. We hope to be able to print illustrated life histories of as high merit as Rockwell's Barr Lake series. There are yet birds of unknown nesting habits which should not be left for Ray alone to exploit! Authoritative faunal lists in moderate proportion are of value as basis for the distributionist's studies. Above all, we invite "Field and Study" notes. Here we get variety of topic and concise treatment. The "Field and Study" department is read by more people twice over than any other part of our magazine. This statement is based upon assurances from many sources. Reviews, communications, and matter for news notes all go to make up the Editorial stock-in-trade. Practically all the material necessary to make a CONDOR must come from the contributor at large. Therefore let those Cooper Club members fortu-

nately situated in respect to such resources remember the Editors early and often.

Sanely administered conservation of natural resources is a much-to-be-desired consummation. This cannot, however, be brought to a satisfactory realization until popular opinion is educated still farther beyond the primitive notion of "everything for today." Certain phases of the bird-life of the west are disappearing at an alarming rate, far faster than is consequent upon the settlement of the country. The proper restriction of hunting privileges must be legalized at once, if certain of our shore birds and ducks are to be saved at all. We would call serious attention to these subjects as discussed in subsequent columns of the present issue. The Club is fortunate in having so energetic an exponent of conservation as W. P. Taylor, chairman of the Northern Division committee. It will require the combined efforts of very many of like industry and enthusiasm to offset the influence of the gunner, when it comes to securing state legislation of an effective sort. This we must obtain *immediately*, or be compelled to witness the complete extermination of many of our native game birds.

COMMUNICATIONS

THE BIRDS OF COLORADO

Editor THE CONDOR:

Perhaps you will kindly allow me a few words in reply to Mr. W. W. Cooke's review of the "Present Status of the Colorado Check-list of Birds." I should like, however, first to thank you and all other of my American ornithological friends for your kind reception of my recently published work on the Birds of Colorado. The time I spent in Colorado was comparatively short, so that I was very much dependent on my friends and correspondents for local observations; but I had the advantage of the very fine collection of Colorado birds made by Mr. C. E. Aiken on which to base my descriptions, and in this way was able I hope to bring to light a good many new facts and at the same time to prepare a work which will always be useful to the Colorado bird-lover.

Mr. Cooke enumerates first of all thirteen species included by me but not by him in his most recent list of Colorado birds (*Auk*, 1909, p. 400); of these he admits six as valid and rejects seven. In regard to these:

Phalacroptilus nuttalli nitidus. This species I only retained in deference to the A. O. U. *Check-List*; I agree with Mr. Cooke that it is probably only a color phase of *P. nuttalli*.

Otocoris alpestris ethymia. I regard this species as a very doubtful one. I would not have recognized it had I been certain of the A. O. U. Committee's final decision in the matter; but the new edition of the *Check-List* did not appear till some time after my manuscript was corrected, and I confess I overlooked the fact that Oberholser's subspecies was omitted.

Agelaius phoeniceus. In my account of this bird I gave after the description some account of the various prevailing views of authorities on the difficult question of the subspecies of Red-winged Blackbirds in the state.

Loxia curvirostra. I was much struck by the great size of the bill of the pair of Crossbills obtained by Aiken in El Paso County. I felt that they must be referred to the larger form known as *L. c. stricklandi*. I see no reason why in the case of a great wanderer like the Crossbill the Mexican form should not stray as far north as Colorado along the Rocky Mountains.

Astragalinus psaltria. I have not come across any "conclusive proof" that the three forms of this goldfinch are color phases due to age. In the typical form generally found throughout Colorado the back is olive green, in the Mexican form the back is black; but I see no evidence that the Colorado subspecies eventually with age becomes black. I think the occasional occurrence of the more southern Mexican form in Colorado is quite conceivable.

Protonotaria citrea. I understood from Mr. Felger that he was quite satisfied that this species had occurred in Colorado.

Of the fifteen birds included by Mr. Cooke in his list, but omitted by me, eleven are mentioned and discussed in the text, though not admitted to the formal list; but I must plead guilty to omitting *Phalaropus fulicarius*, while it would perhaps have been more logical to admit the Pheasant if the English Sparrow is included.

Finally Mr. Cooke mentions a number of birds which I have excluded from my list of breeding birds. In drawing up my list I purposely did not include birds which have only been recorded from the state on one or two occasions; these were placed in the list of casuals. I have not kept birds in the breeding list, although seen several times in summer, unless very definite evidence of breeding is forthcoming.

Yours, etc.,

W. L. SCLATER.

London; September 6, 1912.

INTRODUCED BIRDS OF NEW ZEALAND

Editor THE CONDOR:

Today I received a copy of THE CONDOR, which you were kind enough to send me, and I read with deep interest your remarks on the Chaffinch at Monterey. I quite agree with your note of warning in regard to this English bird. From the very unfortunate experiences we have had in New Zealand, I can say without hesitation that people in your country ought to exercise the utmost

care in regard to English birds that are brought in.

I am an ardent bird-lover—I love them all, even those with the most objectionable characters—but I must confess that many of the English "interlopers," to use your own word, have proved disastrous failures in this country.

This is the case with some birds which were brought here purely in a spirit of sentiment, notably the skylark, the song-thrush, and the black-bird. They are great pests. We now have a law here prohibiting the importation of any foreign birds without the sanction of a Minister of the Crown. The latest attempt in this direction is the Little Grey Owl (*Athene noctua*), which was brought here to deal with the sparrow and other small birds previously introduced, and which, I am afraid, will have a bad effect on our interesting native avifauna, which, late in the day, we are making a frantic effort to preserve.

Yours truly,

JAS. DRUMMOND.

Christchurch, N. Z.; July 17, 1912.

THE CALIFORNIA ASSOCIATED SOCIETIES FOR THE CONSERVATION OF WILD LIFE.

The following is a copy of a letter recently sent out to the officials of eleven organizations in the State of California:

"Dear Sir:

"It is urgent that vigorous action be taken immediately if it is desired to save the remnant of wild life yet remaining in the State of California. Many native species are suffering a rapid decrease in numbers through several causes, while the ranks of the Army of Destruction receive constant augmentation year by year.

"The Committee on Conservation of Wild Life of the Cooper Ornithological Club (Northern Division) is convinced that the formation of a centralized organization would be beneficial to the cause of saving this natural resource, and hereby asks your society to consider the advisability of the formation of such an association. We therefore request answers to the following questions:

"(1) Do you favor an intelligent conservation policy with regard to wild life, that the best interests of the farmer, sportsman, nature-lover, and citizen be guarded?

"(2) If so, would your organization be able and willing to be represented at a meeting to be held soon in this vicinity (San Francisco Bay region) to consider the most effective method of securing enlightened legislation along this line?

"Inclosed find list of societies with whom we are communicating as well as a tentative constitution for the associated societies.

"We hope that you may give this matter as early consideration as is convenient, and that you will be able to support the movement."

In this way your committee has taken up a larger work for the native fauna than has hitherto been attempted. The societies addressed are, Sierra Club, Audubon Society, California Academy of Sciences, Biological Society of the Pacific Coast, Los Angeles Zoological Society, Tamalpais Conservation Club, Great Fish and Game Protective Association, California Game and Fish Protective Association, Paleontological Society of the Pacific Coast, and the State Humane Association. There has been cordial response in nearly every case. Only one organization so far, has not favored the move, namely, the California Game and Fish Protective Association. The two organizations named last have not been heard from. The first six have promised their support, and the first four, as well as the Cooper Club will certainly be represented at the organization meeting. It is not unlikely that every one of the above associations, with the exception mentioned, will ultimately affiliate with the new organization.

The immense possibilities of accomplishment along the lines of better game laws and increased publicity of game matters will be apparent. The Associated Societies will start with a membership of between one and two thousand, including many of the most high-minded and influential conservators in the State.

The organization meeting is to be held early in November in the San Francisco Bay region. Respectfully submitted.

JOHN W. MAILLIARD

H. W. CARRIGER

H. C. BRYANT

J. S. HUNTER

W. P. TAYLOR, *Chairman*.
Committee on Conservation of Wild Life
(Northern Division).

COPY OF LETTER AND RECOMMENDATIONS SUBMITTED TO THE CALIFORNIA FISH AND GAME COMMISSION BY THE COOPER CLUB THROUGH ITS COMMITTEES ON CONSERVATION OF WILD LIFE

Berkeley, Calif., Aug. 26, 1912.
California Fish and Game Commission,
734 Mills Bldg.,
San Francisco, Calif.

Gentlemen:

We submit herewith a list of recommendations as regards new legislation which seems to us would be desirable. We are continually impressed with the necessity for haste in se-

curing enlightened game laws if we are to preserve the remnant of wild life within the state. We feel that California should learn from the experience of other states and commonwealths that, in these matters particularly, a look to the future is necessary. The non-game birds, the game-birds, the fur-bearing mammals, and the food-fishes constitute an immense asset to the state, financially and esthetically. We believe in a progressive policy along the lines of wild-life conservation, and hope that these suggestions may be of some value.

We advocate above all things the passage of a non-sale of game law, for we believe that in this lies the future of some of our best game birds.

We may define our general attitude as being in favor of further restrictions where necessary to the welfare of wild species. "The wild life of today is not wholly ours, to dispose of as we please. It has been given to us *in trust*. We must account for it to those who come after us and audit our records."

Finally, we take this opportunity of expressing our confidence in the State Fish and Game Commission, and trust that we may be able to co-operate with it in the work of wild life conservation. Respectfully submitted,

Cooper Ornithological Club, by Committee
(Northern Division) on Conservation of Wild Life.

H. W. CARRIGER

JOHN W. MAILLIARD

H. C. BRYANT

J. S. HUNTER

W. P. TAYLOR, *Chairman*.

Whereas, to the best of our knowledge many game birds and mammals have been greatly reduced in numbers during the past few years, and

Whereas, certain birds and mammals in this state are known to be approaching extinction, and

Whereas, certain birds and mammals known as game are of such inestimable value to the agriculturist and horticulturist that it is to our interest to protect them, we recommend the following new laws and amendments:

1. A law prohibiting the sale in California of American-killed ducks.
2. A law prohibiting the use of automatic guns and silencers.
3. The abolition of the game districts as at present outlined within the State and, if necessary, a redistricting according to life zones and faunal areas.
4. The shortening of the season on certain game birds and the placing of certain birds now considered game birds on the protected list.

5. Reduction of the bag limit on certain game birds.

6. An investigation into the practicability of a campaign against the English Sparrow to be carried on by the State Fish and Game Commission.

7. A law providing for the protection of the Bear, Raccoon, Mink, Badger, Marten, Fisher, Otter, Red Fox, Wolverine, Skunk, and Ring-tailed Cat during all seasons except during the winter when their fur is prime; the seasons to be determined on the basis of the facts of the case in the different species; provision to be made in the law permitting the killing of these mammals by the owner or tenant of any premises when found doing damage; cases of this necessary killing to be reported to the State Fish and Game Commission.

8. The law regarding rabbits to be amended with the provision that the owner or tenant of any premises be permitted to kill cotton-tails and brush rabbits when found doing damage to crops.

A synopsis of our recommendations and short discussions of each follows:

ANIMAL	SEASON	BAG LIMIT
Redhead	Close indefinitely	
Wood Duck	Close indefinitely	
Other Ducks	Oct. 15 to Feb. 1	20 per day (Bag limit on ducks to remain at 50 per week if "no-sale of ducks" law is not passed)
Ibis and all Shore Birds (<i>Limicolae</i>) with the exception of the Wilson Snipe	(excl'de from game birds and place on protected list)	
Rail	(excl'de from game birds and place on protected list)	
Geese	Oct. 15 to Feb. 1	25 per day
Valley and Desert Quail	Oct. 15 to Nov. 15	20 per day
Mountain Quail	Sept. 1 to Nov. 1	10 per day
Grouse	Sept. 1 to Nov. 1	4 per day
Sage Hen	Sept. 1 to Nov. 1	4 per day
Mourning Dove	(excl'de from game birds and place on protected list)	
Band-tail'd Pigeon	Nov. 1 to Feb. 1	15 per day
Sea Otter	protect absolutely, making the killing of the Sea Otter a felony	
Bear, Mink, Otter, Raccoon, Badger, Marten, Fisher, Red Fox, Wolverine, Skunk, and Ring-tailed Cat	Open season only during time when furs are prime	

RED-HEAD DUCK

The Red-head Duck has been greatly reduced in numbers in this state in the past few years. Data collected the past year shows that there came to the markets of San Francisco only 230 Red-heads making a total of .15 of one per cent of the total number of ducks. The Red-head is a resident species and originally was very abundant in this state.

Our resident ducks need far more protection than the migratory species. We believe, therefore, that we are justified in recommending the closing of the season indefinitely.

WOOD DUCK

The Wood Duck is probably the rarest duck found in the state. Practically all of the Eastern states protect this bird throughout the year simply because it is found in such small numbers. But two or three wood ducks were seen in the markets of San Francisco during the past season. This shows the scarcity of the bird.

OTHER DUCKS

Most of the other ducks to be found in the state we believe are still in sufficient abundance to withstand a limited amount of destruction at the hands of the hunter. We do, however, recommend the shortening of the season to three and one-half months, Oct. 15 to Feb. 1st, the bag limit to be twenty per day.

We also suggest that the bag limit on all ducks remain at fifty per week if the "no-sale of ducks" law does not pass.

SHORE BIRDS

Most of the game birds have withstood destruction at the hands of the hunter far better than the Shore Birds (*Limicolae*). We believe that the shore birds in California have been greatly reduced in numbers and that many of them are nearing extinction. Consequently we suggest that these birds be taken from the list of game birds and that they be protected the year through. We owe something to future generations and certain it is that our shore birds need protection above all others.

RAIL

We recommend that Rail be excluded from the game birds and placed on the protected list. The California Clapper Rail, the most important one of these birds, is gradually nearing extinction not only because of the hunter but because of the reclamation of the lands frequented by the bird. In order that this valuable bird be conserved we believe it necessary that it be absolutely protected.

GEESE

Geese form a cheap and valuable source of food. The numbers of these birds has greatly decreased and, unless some sort of protection is afforded them, it will not be long before this source of food supply is exhausted. We therefore recommend the placing of an open season of three and one-half months, October 15th to February 1st, on geese. This is the particular time of year during which their depredations in grain fields are most noticeable, so that the open season at this time should prevent any antagonism by ranchers of the state.

VALLEY AND DESERT QUAILS

Owing to the increased number of hunters, the increased facilities of transportation, and the increased efficiency of fire arms, we believe it necessary that the season on quail be shortened. Quails must be considered the most important game birds of the state and therefore it seems our duty to do our utmost to conserve them. The toll taken by hunters during the present open season appears too large to allow these birds to hold their own. We recommend therefore the reduction of the open season to one month, October 15th to November 15th; the bag limit to be twenty per day as heretofore.

MOUNTAIN QUAIL, GROUSE AND SAGE-HENS

Here also we believe that a shortening of the season is needed for conservation. Two months, September 1st to November 1st appears to us to be the proper season.

It is a well known fact that the Sage-hen especially has been greatly reduced in numbers. Consequently, a shorter season must be demanded in order to save this valuable game bird.

MOURNING DOVE

In the East the Mourning Dove is not considered a game bird. For some years there has been considerable sentiment in favor of protecting the bird in this state. The Mourning Dove is probably our best weed-seed destroyer. The U. S. Biological Survey has found as many as nine thousand two hundred weed seeds in the crop and stomach of one dove. The value of this bird to the agriculturist and horticulturist is therefore very great. We believe there will be little hardship to the hunter in foregoing the pleasure of shooting this bird. Its economic value certainly justifies its complete protection. Furthermore the diminutive size of its body minimizes its value as a game bird.

BAND-TAILED PIGEON

Up to the present time the Band-tailed Pigeon has received no protection. The total extermination of the Passenger Pigeon whose habits are somewhat like those of our native bird, emphasizes the necessity of protection for this bird. In that the Band-tailed Pigeon has a very slow rate of production, but one young bird being raised each year, it cannot withstand so large an amount of destruction as has been accorded it during past years. All of the evidence at hand points to the fact that this bird has been greatly reduced in numbers. Its habit of flocking together during its appearance in California allows a slaughter which the bird is unable to withstand.

Lest this bird go the way of the Passenger Pigeon, we recommend that an open season of three months, November 1st to February 1st,

be granted, with the bag limit of fifteen per day.

ENGLISH SPARROW

The following is the final decision of the U. S. Biological Survey on the English Sparrow.

"English sparrows are abundant in most of the towns in the United States and in many suburban districts. They are noisy, filthy and destructive. They drive native birds from villages and homesteads. Though they are occasionally valuable as destroyers of noxious insects, all things considered, they do far more harm than good. Practical methods of dealing with them include destruction of nests, shooting, trapping, and poisoning. Of these, trapping is unquestionably the best."

This bird is rapidly spreading here in the state; consequently, we recommend that an investigation be instituted into the practicability of a war of extermination on the English Sparrow, to be carried on by the State Fish and Game Commission.

SEA OTTER

Perhaps the rarest mammal in California and the one whose fur is most valuable is the Sea Otter.

A treaty between the United States and neighboring nations has been drawn up and the law carrying this treaty into effect is now before Congress. We believe that California with its coast line should take an active interest in co-operating with the Federal government in the protection of this extremely valuable mammal and should therefore pass a law absolutely protecting it. In that the prime fur of the Sea Otter is valued at near one thousand dollars, we believe that a law can only be made effective by making the killing of the Sea Otter a felony.

FUR-BEARING MAMMALS

The fur-bearing mammals of the state of California are no small asset. If figures showing the value of furs taken within the state were at hand they would doubtless furnish some astonishing evidence. In order that such mammals as the Bear, Raccoon, Mink, Badger, Marten, Fisher, Otter, Red Fox, Wolverine, Skunk and Ring-tailed Cat be conserved, we believe it necessary that a law providing protection for these mammals, except during the time when furs are prime, should be passed.

There is a great deal of wanton killing of these mammals and it is only right that those still remaining should be killed only when their furs are of value. Provision should be made allowing the killing of any of these mammals found doing damage by any owner or tenant of premises; cases of this necessary killing to be reported to the State Fish and Game Commission.

PUBLICATIONS REVIEWED

A REVISION OF THE SUBSPECIES OF THE GREEN HERON (*Butorides virescens* [LINNAEUS]). By HARRY C. OBERHOLSER. [==Proc. U. S. Nat. Mus., vol. 42, 1912, pp. 529-577.]

In this monograph the author concludes that a proper comprehension of the group in question calls for the recognition of no less than twelve new subspecies, which, with the six previously named forms also recognized in the paper, gives a total of eighteen geographic races of the Green Heron described and discussed.

The new varieties are all from the West Indies, Mexico, and Central America, and their recognition in nowise affects the present arrangement of the A. O. U. Check-List—doubtless to the relief of many. Our southwestern form, *Butorides virescens anthonyi*, is mentioned as one of the best characterized forms of the species; the geographic range ascribed to it is essentially the same as that outlined in the Check-List, though given, of course, in greater detail.

The recognition of such a number of slightly differentiated subspecies (there is one allotted to each of the larger Lesser Antilles south of Guadeloupe, with the exception of St. Vincent) is justified by the author in the following terms: "In the West Indies, either we must recognize a large number of additional forms or merge all. * * * To adopt the latter alternative, however, would be to obscure all the evident and highly interesting, though to some extent puzzling, geographical variations which these West Indian birds exhibit. The writer has, therefore, adopted the former course, as better representing the facts. * * * In one or two cases where forms are separated by a wide geographic area and by intervening races, it has been thought better to recognize by name slight average differences, rather than to refer such a bird to a distant and isolated race, to which, although superficially very similar, it could have no close phylogenetic relationship. This, of course, is the same problem that one meets often in wide-ranging and plastic groups, and which, it seems to the writer, would be in much the best way solved by assigning a name to the isolated colony, if there can be found any characters at all, however slight, to serve as a basis."

The argument is logical and convincing, but even those of us most inclined to admit it, will, I believe, be relieved that the various changes in the group under discussion come no nearer home! Here in the west we have our "colonies" of various species of birds, to which no one as yet has ventured to affix separate names; when they are migratory

forms the difficulty of treatment is much increased.

Mr. Oberholser's treatment of the Green Herons, from the amount of material handled, and the evident care with which the problems involved have been worked out, will probably remain authoritative for some time to come.—H. S. SWARTH.

A PARTIAL ACCOUNT OF THE BIRDS IN THE VICINITY OF LAGUNA BEACH. BY LEON GARDNER [First Annual Report of Laguna Marine Laboratory, 1912, pp. 187-194.]

A briefly annotated list of fifty-eight species observed during the summer near Laguna and Balboa, on the coast of Orange County, in southern California. The birds are for the most part those known to frequent the general region, but we may, perhaps, be allowed to question the inclusion in the list of both *Toxostoma r. redivivum* and *T. r. pasadenense* as well as *Catherpes mexicanus conspersus*. The use of the term "Brown Blackbird" in place of the familiar "Brewer Blackbird" does not seem a very happy innovation. The observation and accompanying collecting of the birds seems to have been done, judging from the annotations, largely for the study of their parasites.—H. S. SWARTH.

BIRDS OF THE PACIFIC SLOPE OF SOUTHERN CALIFORNIA, by GEORGE WILLETT. [==COOPER ORNITHOLOGICAL CLUB, PACIFIC COAST AVIFAUNA No. 7, 1912, pp. 1-122.]

This publication was mailed to all members of the Cooper Ornithological Club, under date of July 25, 1912. One can only wonder at the efficient management of a club that permits it to send its members, in addition to THE CONDOR, such important publications as this, in return for the small membership fee.

It is needless to say that the appearance of this list has been watched for with more than usual interest by the active workers in the Club, as the work is, in its aim, a recapitulation of all that is known of one phase of the avifauna of southern California. Since 1898, Grinnell's "Birds of the Pacific Slope of Los Angeles County" has been the main reliance of bird students of southern California, and Mr. Willett states in his "Introduction" that it was the first idea of the Club merely to revise this list. The territory, however, was finally extended to include not only the Pacific slope of Los Angeles County, but that of all the rest of southern California, as well. This territory, roughly mapped, includes all that section south of the mountains dividing northern and southern California, and west of the ranges extending from the San Jacinto mountains to the Mexican line, cutting off the Colorado desert to the eastward. The list also includes all of the Santa

Barbara group of islands, eight in number, off the coast of southern California, whereas the Grinnell list included only the water birds in the vicinity of Santa Catalina and Santa Barbara islands. Aside from the increase of territory covered, the present paper closely follows the model set by Grinnell in his 1898 list, especially in the concise manner of recording facts.

Mr. Willett, more than any other southern California ornithologist, has given special attention to the birds occurring along the shore and among the islands off the coast, and his activity has, in a way, set the pace for others, with the result that an immense amount of data has been accumulated. Some of this has been published in random notes, but much of it was kept in cold storage in the inaccessible note books of individual workers. The Club, therefore, was particularly happy in its selection of a collaborator so well qualified to carry out the work. His long list of "acknowledgements" indicates how zealously he has followed up every source of information available. Besides this formal acknowledgement, full credit is given in the body of the work to each individual contributor. Previous to 1898, when the Grinnell list was issued, aside from occasional trips to the islands and along the beaches, no systematic work was done among the water fowl and shore birds. Since that time, under the example of Mr. Willett, that branch of ornithology has been actively investigated, with the result that some thirty-nine species have been added to those recorded in 1898. The total number of three hundred land and water birds recorded in 1898, has been increased to 377 in the present paper, about equally distributed between the land birds, and the shore and water birds. Much of this increase, however, is accounted for by the more extensive territory covered and the greater number of workers over the larger area. The work previous to 1898, was centered in scarcely half a dozen earnest students, in a limited area.

In many cases the notes enable us to make comparisons with conditions which existed previous to 1898. For instance, Grinnell and Gaylord visited a colony of Cassin Auklet (*Ptychoramphus aleuticus*) on Santa Barbara Island on May 16, 1897. In June, 1911, Mr. Willett found "that the old breeding colony of these birds was entirely abandoned. From the bones and feathers of this bird found all over the island, I concluded that they had been exterminated by the cats with which the island is infested. On a detached rocky islet, a quarter of a mile from the main island, I found about one hundred pairs of auklets nesting." It seems that the cat question has thrust itself even to the islands of the Pacific!

The list adheres closely to the nomenclature employed in the A. O. U. Check-List of 1910, although in a number of instances the author differs from this authority on questions of distribution of certain species and subspecies. Indeed, who of our California workers does not? In each case he gives full reason for his contrary opinions. A hypothetical list gives eighteen species of more or less doubtful occurrence. The paper concludes with an index of the scientific and common names of all species noted. That this contribution has passed under the able editorship of Joseph Grinnell and Harry S. Swarth, vouches for its high standard in every respect. Indeed, Pacific Coast Avifauna No. 7 maintains the high standard set by the previous publications of the Club, and is a model which may be enlarged upon, but can scarcely be improved.

FRANK S. DAGGETT.

MAGEN- UND GEWÖLLUNTERSUCHUNGEN UNSERER EINHEIMISCHEN RAUBVOGEL, by DR. EUGEN GRESCHIK. [—*Aquila*, vol. 18, pp. 111-177, 6 figs. in text].

One of the first, and in our estimation one of the best of the publications of the U. S. Biological Survey, was Fisher's "Hawks and Owls of the United States." As the economic value of the birds of prey is far more evident than that of other birds, it seems very fitting that these birds should be the first ones to be considered by the economic ornithologist. In several foreign countries interest is centered at the present time in the food of hawks and owls.

In *Aquila* for 1911, Dr. Eugen Greschik continues a report of his researches on the food of the native birds of prey of Hungary. The paper is entitled: "Stomach and Pellet Examination of Our Native Birds of Prey." The first installment, published in *Aquila* for 1910, furnished evidence as to the food of the hawks, whereas the more recent article deals with the owls.

The introduction to the last contribution points out the need of protection for owls, owing to the great yearly slaughter. Evidence is advanced that at least 11,593 Uhreulen and 18,738 other owls were shot in 1907. Attention is called to the value of these birds to the agriculturist and forester, so that better protection may result. Reference is also made to the economic work of the U. S. Biological Survey, and to that of certain European museums and societies. Emphasis is laid on the necessity of "positive data" as to the food of birds as a means of determining their real value.

A discussion of the food of the seven species of owls to be found in Hungary forms the main part of the paper. Short descriptions of the habitat and habits, and figures of the

commoner species with accompanying figures of pellets, are added for the benefit of the agriculturist. The result of the stomach and pellet examinations are given in tabular form. Data consisting of the date, locality, and the kind and number of insects and animals making up the food, is given for each stomach and pellet examination. These tables answer for the owls, therefore, two questions submitted by the author in his introduction: How much food do birds consume? and: What kind of food do they take?

According to the tables, the field mouse (*Microtus arvalis*), and the Waldmaus (*Mus sylvaticus*) and the house mouse (*Mus musculus*) is the food most often taken. Shrews, sparrows, frogs, and insects, and even occasionally larger mammals such as the rabbit and weasel, were found to make up a small percentage of the food.

Evidence of the occurrence of certain small mammals abundant in Germany but seldom recorded in Hungary, was presented by the discovery of an Aekermaus (*Microtus agrestis*) in the stomach of an Uhu (*Bubo bubo*), and of the nordische Wuhlratte (*Mus ratticeps*) in the stomach of a Waldkauz (*Syrnium aluco*).

Constant reference to the results of similar investigations in Germany strengthens the evidence. The large number of pellet examinations recorded, shows the interest taken in this line of work in Germany. Of the Schleiereule (*Strix flammea*) alone, 703, 9,472, and 2,821 pellets have been examined by three different investigators.

Dr. Greschik's doctor's thesis entitled: "Beitrage zur Kenntnis der Molaren der einheimischen Murinen," published in 1910 *Aquila*, was a contribution of permanent value. The determination of seeds, insects, and animals found in the stomachs of birds is not an easy task, and the presentation of improved methods adds to the accuracy and efficiency of future workers in the field. The method of determining species of mice by means of tooth characters described by Dr. Greschik furnishes a dependable method of determining species.

We therefore recognize in Dr. Greschik's present contribution the same admirable type of work as that to be seen in his thesis. The desire to furnish "positive data" as to the food of birds is the ideal that should lead and influence every economic ornithologist. May the day be hastened when still more of this type of work will be seen in our ornithological and agricultural publications.—H. C. BRYANT.

MICHIGAN BIRD LIFE. BY WALTER BRADFORD BARROWS, S. B. [Special Bulletin of the Department of Zoology and Physiology,

Michigan Agricultural College, 1912, pp. i-xiv, 1-822, 70 pls., 152 figs. in text].

This should be an extremely useful book to anyone interested in Michigan birds—to the specialist desiring accurate, thorough information regarding the species occurring in the state, to the student endeavoring to identify birds, either alive or in the hand, or to the "average citizen" out for sport or recreation, who chances upon some interesting specimen. The treatment seems adequate to meet any of these contingencies. Descriptions are brief, but accurate, bringing out clearly the salient features of the species. The accounts of the life histories and status within the state of the various species treated, have evidently been most carefully drawn up; and in the doubtful cases, such as *Bonasa n. umbellus* and *B. n. togata*, the facts in the case are impartially submitted, while the conclusions drawn seem sound and sensible. "Keys" are used, but not to excess, and there is a sufficiency of excellent illustrations so that the person needing the "key" (and who but seldom uses it) will in many cases be able to utilize the pictures as short cuts to the information desired.

The introduction may be profitably read and studied by ornithologists of any region, the author's remarks on distribution, the changes produced by varying conditions in the state, methods of study, migration, and kindred subjects being eminently interesting and suggestive.

On the whole this account of the birds of Michigan appeals to the reviewer as a most admirable piece of work. Not the least of its merits is the fact that it has been published in such a way as to be obtainable by those who will most need and appreciate it.—H. S. SWARTH.

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

AUGUST.—The August meeting of the Southern Division of the Cooper Ornithological Club was held on August 29, 1912, in the Committee Room of the Museum of History, Science and Art. Mr. F. S. Daggett was elected temporary chairman.

The following members were present: Appleton, Daggett, Law, Rich, Zahn.

The minutes of the Southern Division for July were read and approved. Upon motion of Dr. Rich, seconded by Mr. Zahn, and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership, Messrs. Samuel Hubbard, Jr., Jesse J. Wood, William A.

Magee, Jr., and Mrs. J. W. Wheeler, nominated at the last meeting.

Applications for membership were presented as follows: Frank C. Clarke, 218 East Hall, University of Cal., Berkeley, Calif., proposed by H. C. Bryant; Harry Telford, Klamath Falls, Oregon, proposed by Stanley G. Jewett; L. Alva Lewis, 809 Yeon Bldg., Portland, Oregon, proposed by Stanley G. Jewett; F. H. Fawcett, Narrows, Harney Co., Oregon, proposed by Stanley G. Jewett.

Upon motion by Mr. Law, seconded by Dr. Rich and unanimously carried, the Southern Division approved heartily the action of the Northern Division in electing to honorary membership Mr. Frank Stephens of San Diego.

The Secretary read an interesting paper on "Bats as Desirable Citizens," by J. Grinnell, which called forth much discussion on a little known subject.

On adjournment, the members present were shown through the museum room and noted many interesting additions since the last meeting. Adjourned.—J. E. LAW, *Secretary*.

SEPTEMBER.—The September meeting of the Southern Division of the Cooper Ornithological Club was held on September 26, 1912, in the Committee Room of the Museum of History, Science and Art, with vice-president Lelande in the chair.

The following members were present: Chambers, Cookman, Daggett, Davis, Howell, Hubbs, Lelande, Miller, Owen, Rich, Robertson, Van Rossem, Willett, Wood, and Law; and as visitors, Mr. and Mrs. Sowers.

The minutes of the August meeting were read and approved, and the minutes of the Northern Division for September were read. Upon motion by Mr. Willett, seconded by Mr. Miller and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Messrs. Frank C. Clarke, Harry Telford, L. Alva Lewis and F. H. Fawcett, proposed at the last meeting.

Applications for membership were presented as follows: Alfred Cookman, Los Angeles, proposed by Evan Davis; Hans Hochbaum, Los Angeles, proposed by Loye Miller; Morris Johnson, Valley City, North Dakota, proposed by Vernon Bailey; Pierre E. Letchworth, Jr., Covina, proposed by A. B. Howell; E. W. Merrill, Sitka, Alaska, proposed by G. Willett; Wilson P. Gee, Berkeley, proposed by H. C. Bryant; Forrest S. Hanford, Santa Maria, proposed by H. W. Carriger, and John N. Loshinski, Berkeley, proposed by H. C. Bryant.

The resignation of Mr. Clarence Birdseye was accepted with regret. Mr. Birdseye expects to spend considerable time in extreme

Northeastern America. The Committee on Game Protection was empowered to consider and take final action with regard to the proposed combination to be known as the Associated Societies for the Protection of Wild Life. The Secretary was instructed to get more data with regard to the probable and possible expense of such Association. The action of the Northern Division was approved, and the Secretary of the Southern Division was accordingly instructed to sign and forward a letter to the American Ornithologists' Union suggesting that the Society meet in San Francisco in 1915. The following amendment to the Constitution was adopted, subject to the approval of the Northern Division: Article 10, Section 4 to be repealed and a new Article 10, Section 4 to take its place and to read as follows: "All members in good standing and all honorary members shall receive THE CONDOR free of charge, and shall be entitled to Avifaunas as they appear, under whatever conditions the Business Manager at the time deems expedient."

Mr. George Willett then gave a very interesting talk on his recent trip to Alaska for the Biological Survey, on which he obtained and observed many rare birds. Mr. Willett exhibited specimens of the Horned Puffin, Ancient, Marbled and Kittlitz Murrelets, Sooty Grouse, four specimens of Dixon Ptarmigan, of which there are but few other specimens in collections, and a series of the Fork-tailed Petrel, from downy young to adult. Mr. Willett in less than two months, observed eighty-five species of birds. Adjourned.—J. E. LAW, *Secretary*.

NORTHERN DIVISION

SEPTEMBER.—The September meeting of the Northern Division was held at the Museum of Vertebrate Zoology, Saturday evening, September 21, with President Coggins in the chair and the following members present: Messrs. Bryant, Carriger, Coggins, Grinnell, Mailliard, Shelton, Swarth and Taylor. Mrs. Grinnell and J. N. Loshinski were visitors. The minutes of the August meeting were read and approved, followed by the Southern Division August minutes.

New names were proposed as follows: W. B. Bell, Agricultural College, North Dakota; C. C. Schmidt, University, North Dakota; M. Johnson, Valley City, North Dakota; H. V. Williams, Crafton, North Dakota; and A. Eastgate, Tolna, North Dakota, all presented by Mr. Vernon Bailey; W. P. Gee, Berkeley, J. N. Loshinsky, Berkeley, and F. C. Clarke, Berkeley, presented by H. C. Bryant; and F. S. Hanford, presented by H. W. Carriger.

W. P. Taylor, chairman of the committee

on conservation of wild life; gave a report, briefly outlining the work accomplished by the committee, and sketching some of the plans for the future.

It was suggested that the Club renew its petition to the American Ornithologists' Union, requesting that society to hold its annual meeting in 1915 in San Francisco, jointly with the Cooper Club, as contained in a resolution passed at the October, 1911, meeting. The secretary was instructed to draft such a proposal and send it to the Southern Division for its approval.

The paper of the evening was "The Relation of Birds to a Grasshopper Outbreak in California," by H. C. Bryant, presenting some of the results of a study of the actions and diet of certain species of birds during a plague of grasshoppers in the San Joaquin Valley. Adjourned.—H. S. SWARTH, *Secretary*.

OCTOBER.—The October meeting of the Northern Division was held at the Museum of Vertebrate Zoology on Saturday evening, October 19, with President Coggins in the chair, and the following members present: Bryant, Coggins, Gifford, Heinemann, Joseph Mailliard, Miner, Shelton and Swarth. Mr. A. L. Barrows was a visitor. The Northern Division minutes for September were read and approved, followed by the reading of the Southern Division September minutes.

The following individuals were elected to membership in the club: F. S. Hanford, J. N. Loshinski, W. P. Gee, F. C. Clarke, W. B. Bell, C. C. Schmidt, M. Johnson, H. V. Williams, A. Eastgate. New names were presented as follows: Hilda Wood Grinnell, proposed by J. Grinnell; A. L. Barrows, Berkeley, by H. C. Bryant; Hans. Hochbaum, Los Angeles, by L. H. Miller; A. Cookman, Los Angeles, by Evan Davis; P. E. Letchworth Jr., Covina, by A. B. Howell; E. W. Merrill, Sitka, Alaska, by G. Willett; and W. A. Squires, Stockton, by W. Lee Chambers.

The only new business was the ratification of the amendment to the Constitution dealing with the distribution of Club publications, already passed by the Southern Division.

Mr. Coggins read some extracts from Cassinia, as of especial interest to California ornithologists. In the absence of Mr. Taylor the report of the conservation committee was read by Mr. Bryant. Mr. Gifford, in the course of an account of some of his experiences with wild ducks in an aviary, made a strong plea for the great value of experimental work with captive birds, as supplemental to field work and the study of museum material. Some of his remarks were illustrated with study skins showing certain of

the more unusual plumages; and the speaker pointed out the danger of drawing erroneous conclusions from the mere observation of these conditions without a thorough knowledge of the life history of the bird. His remarks called forth a rather extended discussion of the subject.

Mr. Bryant had on exhibition a series of wall charts showing the food of certain species of birds, these being destined for use in an exhibit which the State Fish and Game Commission is to place in the Alameda County Fair. Adjourned.—H. S. SWARTH, *Secretary*.

REPORT OF ORGANIZATION MEETING, CALIFORNIA ASSOCIATED SOCIETIES FOR THE CONSERVATION OF WILD LIFE

It now (November 14) becomes my pleasant duty to transmit a record of the organization meeting of which mention is made on page 227. Representatives of nine organizations, as well as all the members of the Cooper Club Committee on Conservation of Wild Life (Northern Division), and Secretary Schaeffle of the Fish and Game Commission, were present at the meeting. Instead of a membership of five societies and between one and two thousand individuals, as prophesied on page 228 of this issue, the California Associated Societies for the Conservation of Wild Life was inaugurated with a constituency of nine societies having a total membership of between nine and ten thousand persons.

The Executive Committee of the new association consists of the following persons. Dr. William F. Bade, Sierra Club; Roy E. Dickerson, Paleontological Society of the Pacific Coast; J. Grinnell, California Academy of Sciences; Matthew McCurric, State Humane Association and San Francisco Society for the Prevention of Cruelty to Animals; W. Leon Dawson, State Audubon Society of California; Professor L. L. Burlingame, Biological Society of the Pacific Coast; J. H. Cutter, Tamalpais Conservation Club; W. P. Taylor, Cooper Ornithological Club. Dr. William F. Bade of the Sierra Club was elected President of the California Associated Societies, and W. P. Taylor of the Cooper Club, Secretary.

A program of practical work was outlined, and it is intended to push with all diligence the passage of laws desired for wise conservation of wild life.

The most important and immediately desired measures are the following: (1) A no-sale of American-killed wild game law. (2) A law placing all assistants and deputies of the Fish and Game Commission under Civil Service. (3) The absolute protection of the Red-head, Wood Duck, Ibis, Shore-birds, Rail, Band-tailed Pigeon, Mourning Dove, and Sea Otter.

W. P. TAYLOR, *Chairman*
Committee on Conservation of Wild Life,
Northern Division.

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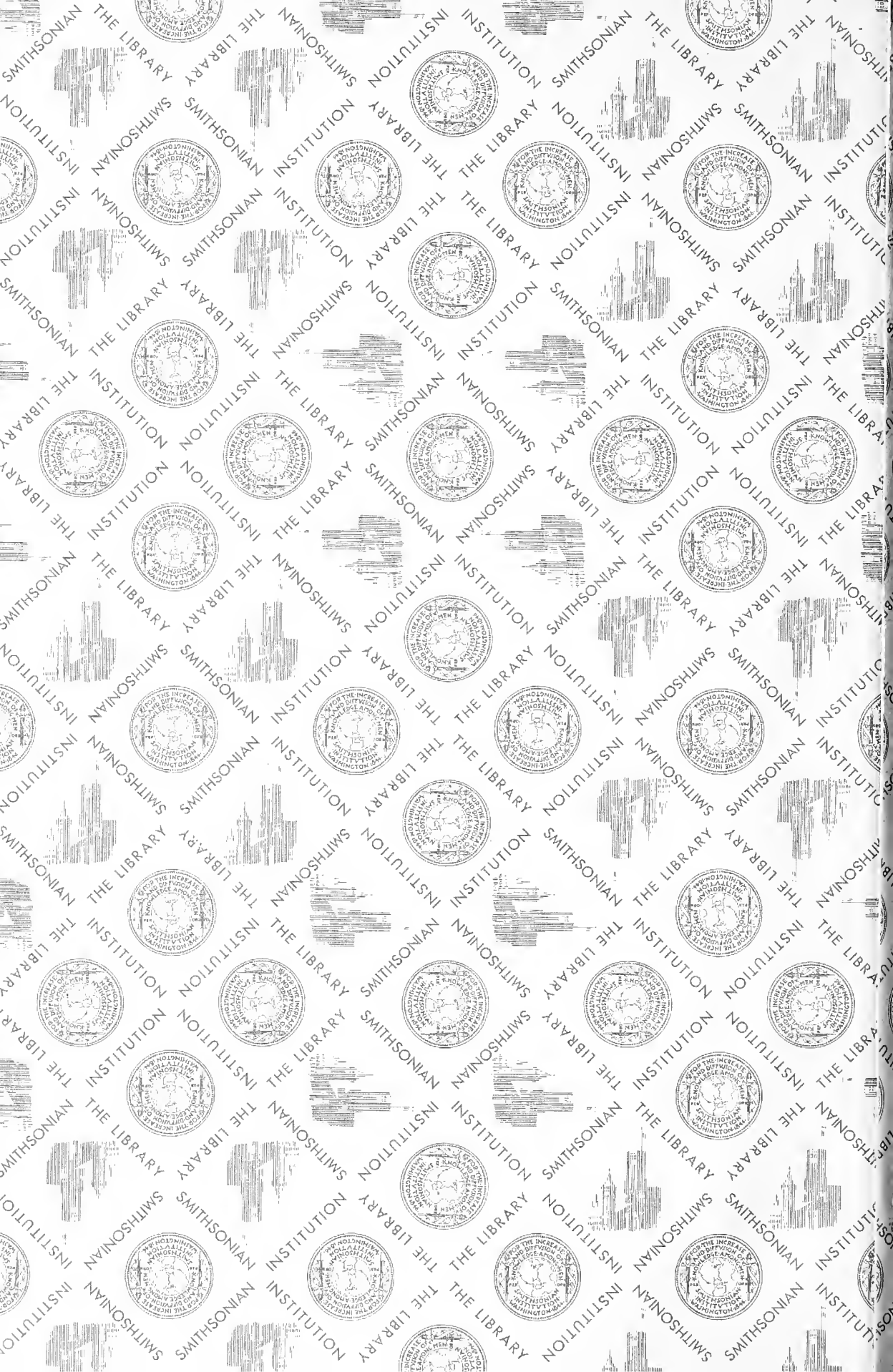
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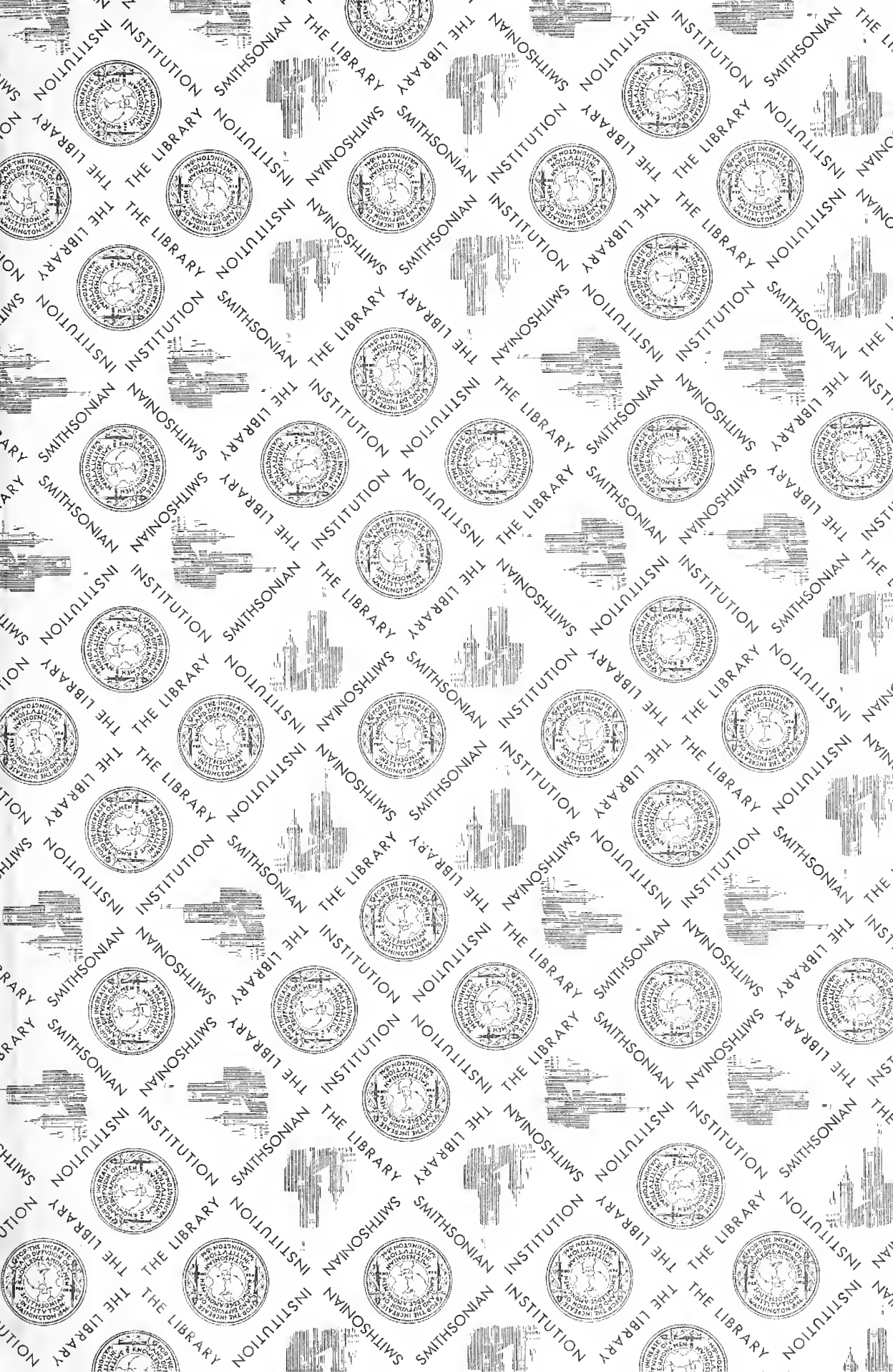
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